Southern California's Computer Magazine

Mar. 30, 1992 • 94

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MicroTIMES™

SunSoft President
Ed Zander

Sun Meets Intel

Workstations In Corporate Computing

SunSoft President Ed Zander: "As Intel upscales its instruction set for more power, people are building some very demanding 486-based, multiprocessor-based Intel machines, and they need an operating system to run. They can't run DOS and Windows on a 486, it just doesn't do anything. You need multitasking, you need networking, you need multiprocessing."

Story starts on page 60

QuickTime Takes Off

"Digital video running on a standard Mac changes the rules on what's possible. For the price of a couple of business lunches, Kid Pix Companion might eat the lunches of several low/mid-range presentation packages with more elevated tabs."

Story starts on page 118

Dvorak's Mailbag

"The little vest-pocket Day-Timer, which costs about $20 and weighs less than a pound, has been turned into software selling for $195 and running on a 6 1/2lb. pen-based machine that must be carried around in a briefcase. Gosh, sounds like a good idea to me. Not!"

Story starts on page 150

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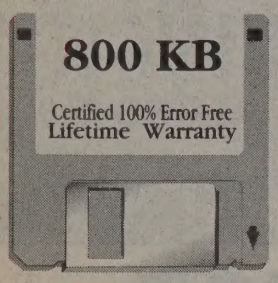

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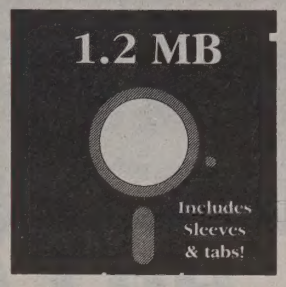

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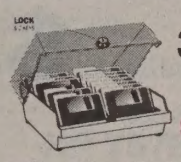

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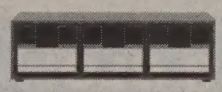

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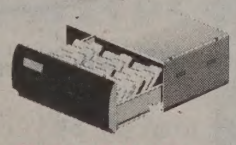

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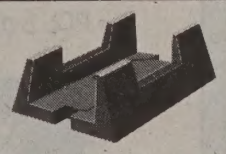

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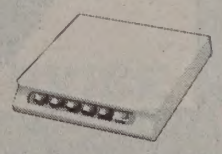

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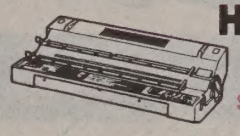

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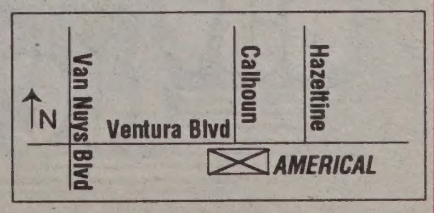

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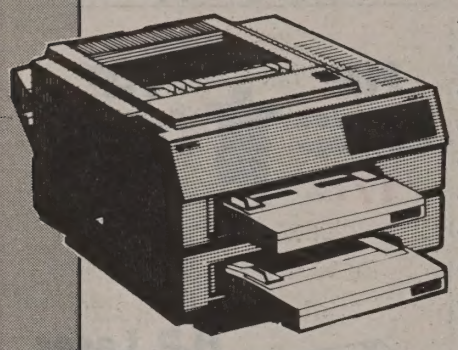

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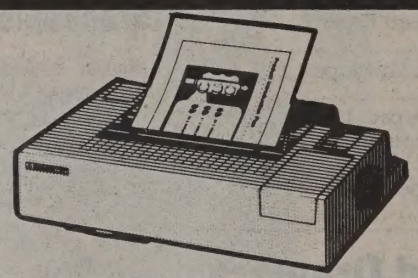

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(IBM) (MAC)

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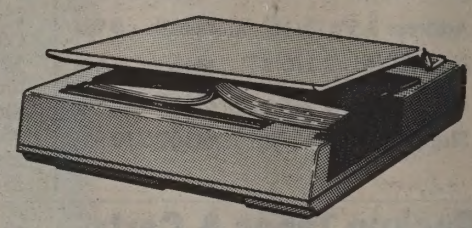

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- Document feeder optional
- Apple compatible

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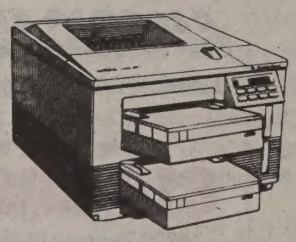

HP LASERJET III

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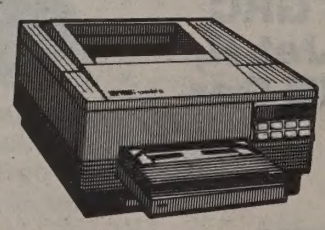
- Faster graphics printing
- Built-in scalable typefaces
- PCL 5 printer languages



HP LASERJET IIID

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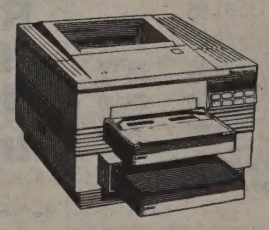

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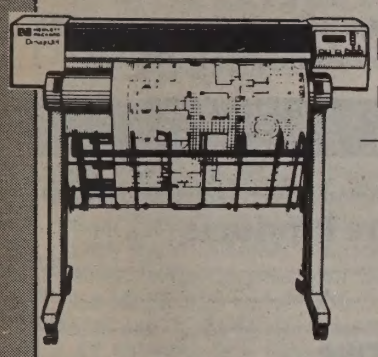

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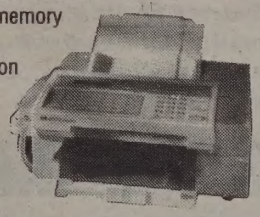

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MICROTIMES™

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A NOTE FROM THE EDITORS

It's been a while since we checked in with Sun Microsystems, and, with SunWorld Expo almost upon us, it seemed like the time had come for a return visit. We found our conversation with Ed Zander, president of the new SunSoft, an illuminating look at the company's strategy and its implications for the kind of computing we're all likely to be doing at work in the future—collaborative and connected.

The interview starts on page 60, and we hope you find it informative. And, for another look at the kind of computing we'll be seeing (or at least *wanting*) on our desktops in the future, check out "QuickTime Takes Off," the latest from multimedia fan Tony Reveaux, which starts on page 118.

—ME

COVER STORY

Enterprise Computing
Workstations Get Down To Business At SunSoft *By Mary Eisenhart* 60

Cover and contents photos: Michael Jay

After years of prosperity, technical excellence, and considerable promotion of its SPARC standard, Sun Microsystems made waves last fall when it announced its intention to port the Solaris operating system from SPARC to Intel environments. Much confusion ensued, with questions on subjects ranging from Sun's perceived abandonment of SPARC (not happening) to the possible replacement of the DOS standard by Solaris-flavored UNIX (also probably not happening). In a recent visit to Mountain View, we found SunSoft president Ed Zander willing and able to clarify the situation. Read on.

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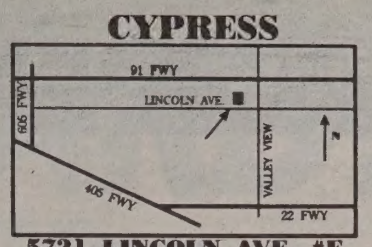

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For Sun, SPARC and Solaris, you'll find everything you need to know at this show, coming to Santa Clara in April.

Enterprise Computing
Workstations Get Down To Business At SunSoft 60
By Mary Eisenhart
After years of prosperity, technical excellence, and considerable promotion of its SPARC standard, Sun Microsystems made waves last fall when it announced its intention to port the Solaris operating system from SPARC to Intel environments. Much confusion ensued, with questions on subjects ranging from Sun's perceived abandonment of SPARC (not happening) to the possible replacement of the DOS standard by Solaris-flavored UNIX (also probably not happening). In a recent visit to Mountain View, we found SunSoft president Ed Zander willing and able to clarify the situation. Read on.

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Virus hell from MBDF to Michelangelo.

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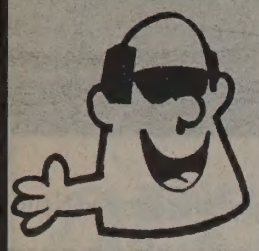

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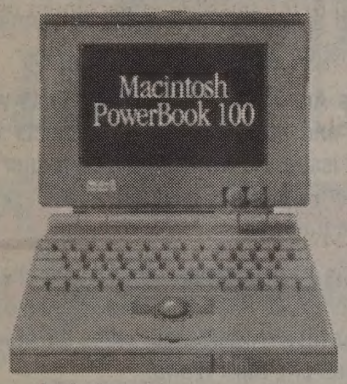

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CONTRIBUTORS

Jim Warren Nominated for Consumers Union Board

We are delighted to report that the Consumers Union Board of Directors has nominated our Contributing Editor and "futures" columnist, Jim Warren, as one of thirteen candidates, nationally, for their board. Six of the thirteen will be elected by ballots, which are being mailed to all *Consumer Reports* subscribers in April.

We applaud their nomination and wish Jim well in the election. Consumers and the Consumers Union would benefit from having him on their board, especially regarding issues of online consumer services, consumer privacy issues, and the whole realm of low-cost consumer computing.

If you subscribe to *Consumer Reports,* watch for your ballot sometime this month.

–eds.

Lenny Bailes is a teacher, writer and consultant who lives in the Bay Area. His book, *Multitasking and Memory Management Beyond 640K,* will be published Real Soon Now by Tab/McGraw-Hill. He can be reached via the Internet at *jroe@well.sf.ca.us* or on MCI at 476-2702.

Kate Coady works at Kay Technical Research in Connecticut. Since 1985, she's been responsible for systems analysis, design, implementation, programming, and security.

Anna Couey (email: couey@well.sf.ca.us) is a writer and artist; and she is Network Coordinator for Arts Wire, an arts news and advocacy computer networking project. She specializes in cultural applications of new communications technologies.

John C. Dvorak is a columnist, book author, software publisher, and radio talk show host. He gets a lot of weird mail.

Paul Hoffman is an industry analyst who's been writing about microcomputer technology for ten years, and the author of several books on computer-related topics.

Ed Kahn lives in Studio City and writes about laptops and other PC technology.

Matthew Leeds works at Brøderbund Software, and is also a writer and photographer. He writes about Amiga- and Macintosh-related products and issues.

Woody Liswood has been writing about microcomputer hardware and software since 1980 for such publications as *Whole Earth Software Review, Personal Computing, PC World,* and *Compute!* He has also published a book on micro-based Human Resource Information Systems.

Mike ("Games Are My Life") Markowitz has written about games and other interesting subjects for us since our first issue. He works in the computer lab of a major Southern California university and has recently discovered the Internet.

Tony Reveaux is a San Francisco-based consultant and the editor of *Computer Publicity News.* He's also a contributing editor for *Artweek,* and writes the "MediaScan" column in *Film/Tape World.*

Tom Schlegel is a San Francisco-based consultant specializing in financial systems for nonprofit organizations and small- to medium-sized businesses. He can be reached via the Internet at *thansen@well.sf.ca.us.*

Birrell Walsh is a free-lance writer, technician, linguist, and radio commentator in San Francisco.

Wayne A. Yacco is a consultant and writes for many computer publications on a variety of subjects. He lives in Burbank.

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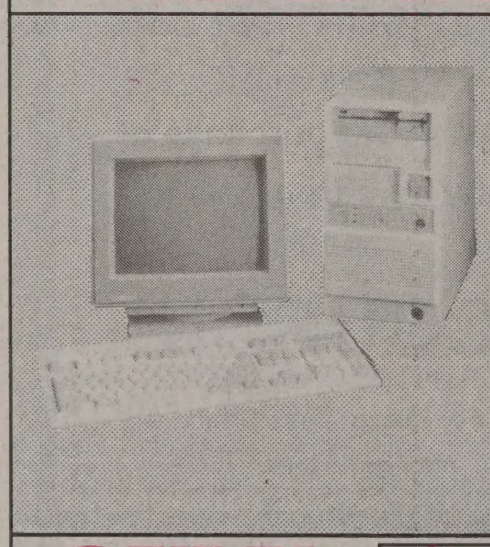

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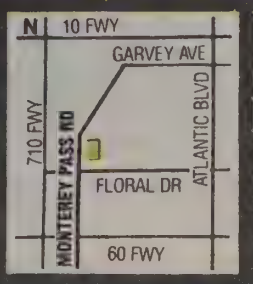

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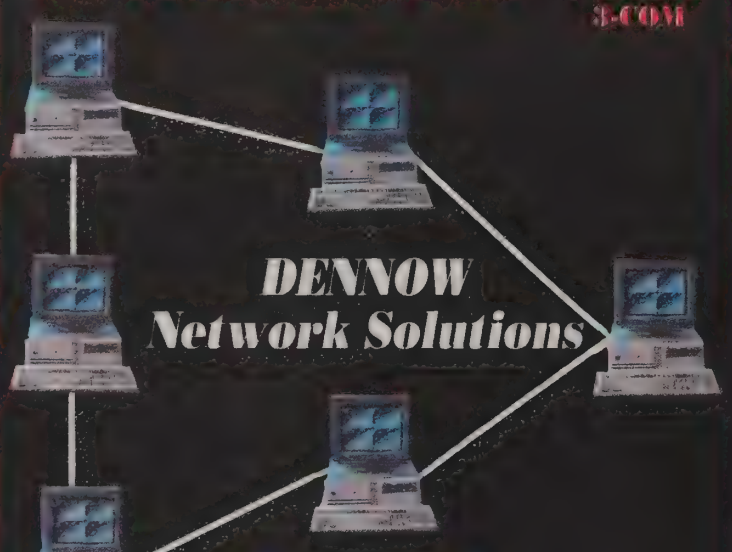

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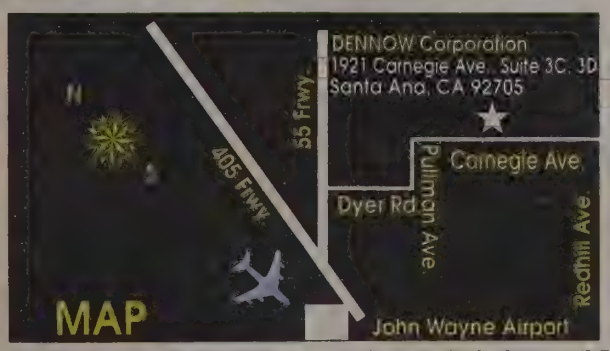

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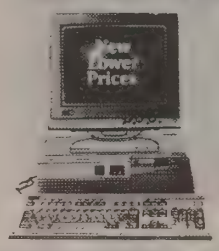

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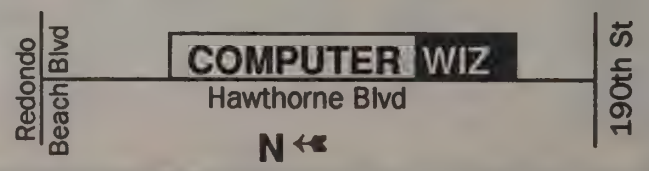

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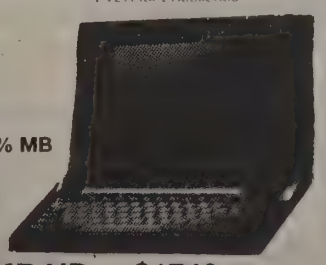

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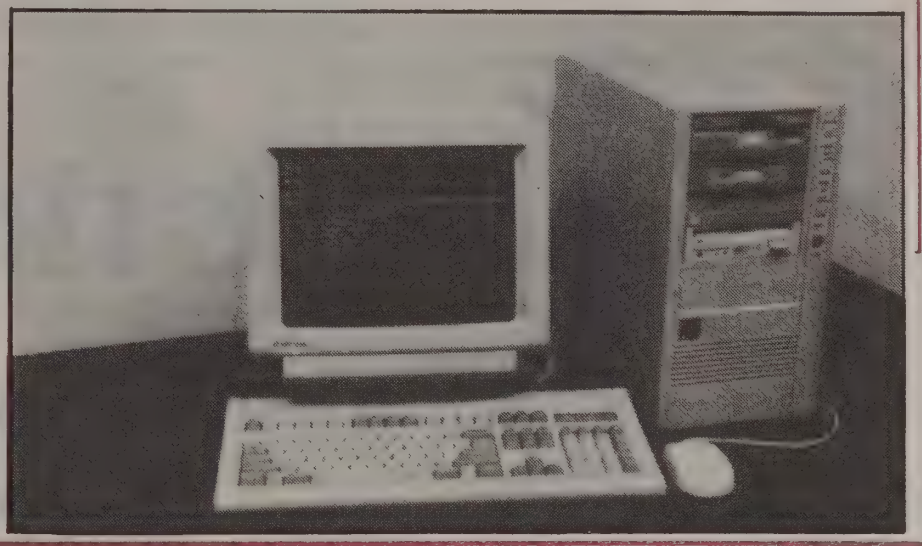

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INDUSTRY INSIGHT

A Document Revolution

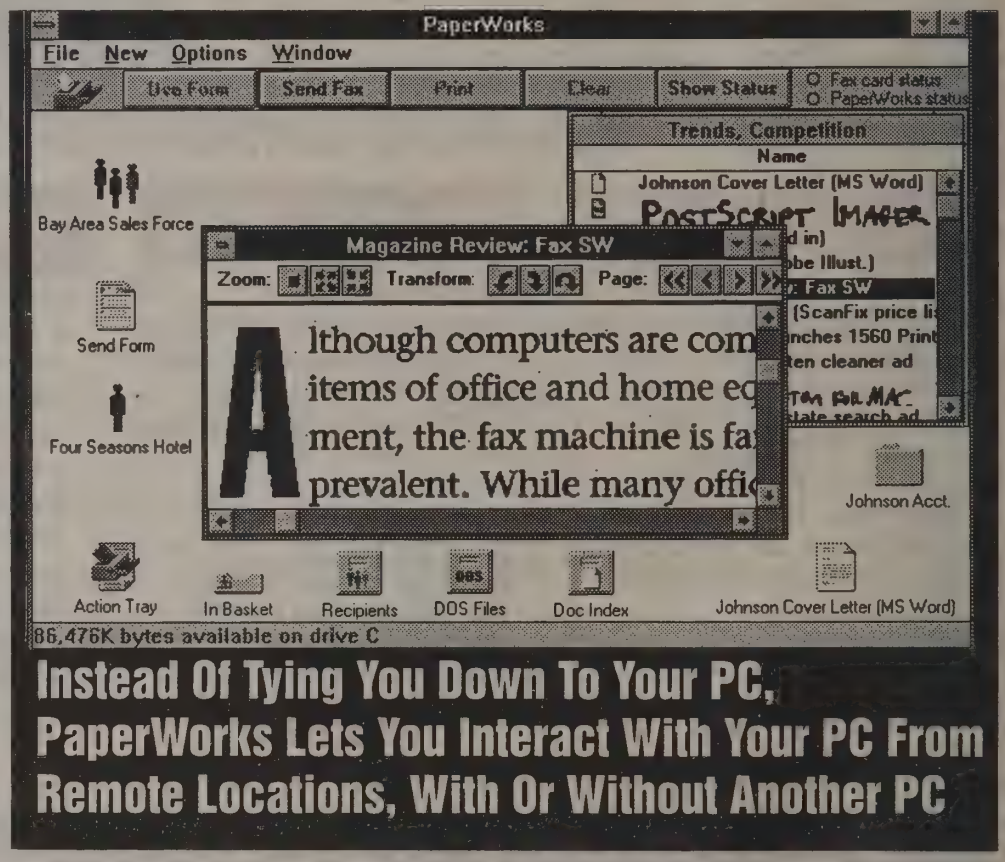
BY PAUL HOFFMAN

XEROX LAUNCHES FAXED-DOCUMENT REVOLUTION WITH NEW TECHNOLOGY

After all these years, many people may be shocked to see Xerox at the forefront of a new computer technology, but its recently announced PaperWorks software product will certainly turn many heads. Instead of taking a current idea and adding new features, Xerox went all the way back to the customer to come up with a radically new idea in document handling. In doing so, it has embarked into uncharted territory that will certainly pay off in the future.

Most software deals with documents as the end product of a series of tasks. Word processors, data bases, and spreadsheets are all based around the idea that you need to create a document using particular actions. Once the document is completed, there are essentially two choices: save it to disk and print it. Most people do both, often just to be sure that the printed version matches their model of how the document "should" look if they hadn't used the computer. In the past five years, there has arisen a third choice, electronically mailing the document saved on disk, but this has been fraught with problems, namely the incompatibility of file formats.

Outside the universe of software developers, businesspeople were muddling by with the restrictions imposed by software. Since documents are often presented to other people, the vast majority of them were printed out and sent, or hand-carried to a meeting. Since you couldn't drag all the possibly relevant documents you've created to a meeting, you often printed out more than you needed. If you guessed wrong about what was needed, and you weren't in your office, you could get someone to fax you the needed documents—assuming you had a printed version in your office or the person there knew how to coax your software into printing. If you were lucky, you could bring all your documents on disk and print them as needed, assuming compatible hardware, software, and printer at the meeting site.



Instead Of Tying You Down To Your PC, PaperWorks Lets You Interact With Your PC From Remote Locations, With Or Without Another PC

Xerox looked at this dilemma, then looked at the communication technology most commonly used for remote document transmittal: the fax. They discovered that there were fax machines everywhere, and that high-quality fax send/receive boards had become common in PCs. But the problem remained: How can you request that a document on your PC be faxed to you? You could ask someone to run the program that created the document, print it, and fax it; but that assumes the existence of a person at the right time and place (often not true if you're many time zones away) who knows how to run your software (often not true if the person is an assistant or coworker who mostly uses other software).

PaperWorks solves the problem by letting you fax requests for documents directly to your PC. You fill out a form requesting a particular document, fax it, then hang up. A moment later, your PC dials the fax you've specified and sends the document. PaperWorks can also work in reverse: you can fill out a form telling it to send copies of the document following the form to anyone in your database, and to save the document on your disk for later retrieval.

The main advantage of PaperWorks to traveling businesspeople and multi-site offices is obvious: freedom from having PC hardware everywhere. All your base PC

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) and MCI Mail (264-3171). He also writes popular microcomputer books.

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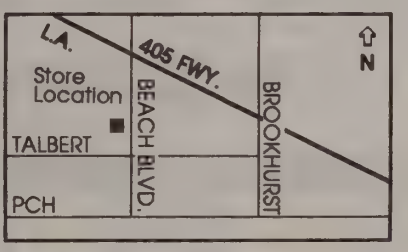

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PaperWorks has many features even the most advanced fax software lacks. When a fax arrives, PaperWorks checks each page to determine if it is a PaperWorks form. All non-form pages are stored in a compressed form in a database by document. You can name your documents whatever you want (you are not hampered by MS-DOS's file names); you can associate them with different tasks (so that they appear in more than one task folder); and you can view them or fax them at any time. Xerox included some of its advanced image-scanning software in PaperWorks so that skewed pages are automatically straightened and small characters are made easy to read with smart grayscale technology. If you receive many faxes on your PC, you may want to get PaperWorks just for the display technology, but you'll find yourself using the remote features almost immediately.

PaperWorks solves the problem by letting you fax requests for documents directly to your PC. You fill out a form requesting a particular document, fax it, then hang up. A moment later, your PC dials the fax you've specified and sends the document.

PaperWorks is a major step in understanding how users handle documents. Instead of tying you down to your PC, PaperWorks lets you interact with your PC from remote locations, with or without another PC.

The first version allows you to retrieve and distribute faxed documents; clearly, Xerox is not stopping there. Xerox will license some of the technology to other companies so you can perform more tasks through the fax (such as controlling other aspects of your PC) and will probably come out with some of its own extensions, such as equal support for voice.

Xerox's decades of research into images, language, multiplatform development, and office sociology will certainly manifest itself in extensions to PaperWorks that will integrate with Xerox's other businesses. If PaperWorks catches on, the constant hassles many people experience with modems may be replaced by the simplicity of the fax machine.

INTEL RELEASES FAST 80486

Just when you thought you had all the Intel and Intel-compatible CPUs straight, Intel introduces a new and fairly different version of the 80486. The new chip, called the 486DX2, allows manufacturers to put fast CPUs in sys-

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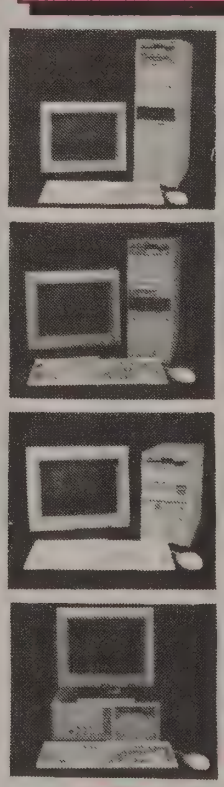

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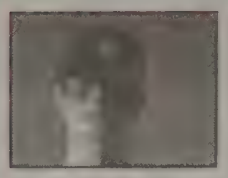

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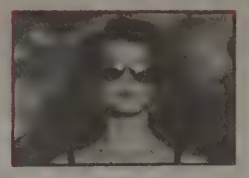

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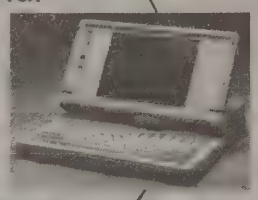

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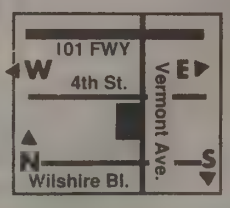

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The 486DX2-50 is about 20% slower than the full 50MHz chip and costs about 10% less to computer manufacturers. However, since it can be used in systems designed for the 25MHz 486DX with almost no change, the total system cost will be much lower.

tems originally designed for slower CPUs. This translates directly to lower-cost computers, because fast CPUs demand that many of the other chips in the system also be fast, and thus more expensive.

The 486DX2, also called the "clock doubler" chip, allows the CPU to run twice as fast internally as externally. The first chip announced and shipping is the 486DX2-50. This chip runs internally as fast as Intel's 50MHz 486DX but can be used in systems that were designed for the 25MHz 486DX. The 486DX2-50 is about 20% slower than the full 50MHz chip and costs about 10% less to computer manufacturers. However, since it can be used in systems designed for the 25MHz 486DX with almost no change, the total system cost will be much lower. These systems will offer more power than 33MHz systems for more cost, with about an equal tradeoff. Dozens of manufacturers have already announced systems based on the 486DX-50.

Intel will also release a version of the chip that works in the second chip slot of many 25MHz 486SX systems within a few months. The upgrade for these systems consists of simply putting the new chip into the second slot. This upgrade will significantly speed up your system, but at a steep price, since your original CPU is then disabled. Intel did not announce the price of the 486SX upgrade.

Intel's release of the DX2 series comes at the same time that many manufacturers have realized that it is very difficult to design 50MHz systems. The faster the CPU, the greater the amount of radio frequency interference (RFI) generated. Designing a board to bring the RFI down to legal standards at very high speeds has become so difficult that many manufacturers are ignoring the 50MHz 486DX. Now, they can offer a system that is almost as fast as a 486DX system without all the design headaches. The slight speed decrease will be reflected in slightly lower costs.

It is widely expected that Intel will release a 66MHz version of the 486DX2 this fall; the new chip will work with systems designed for 33MHz. Those systems will certainly run faster than 50MHz 486DX systems and may cost less, unless Intel artificially increases the price of the chip. Within eighteen months, Intel may even release a 100MHz 486DX2.

APPLE EXPLAINS DIRECTION OF MACINTOSH OS

In an effort to quell fears about Taligent and the Macintosh, Apple described specific plans for the future of Macintosh software, emphasizing that even after the first release of Taligent a few years from now, the Macintosh operating system would live on. By stressing the future of the Macintosh operating system, Apple gave developers a much clearer picture of the future than Microsoft did three years ago when it tried to differentiate MS-DOS, Windows, and OS/2 (NT hadn't even been mentioned then).

The basic feature of the future is modularity. You will be able to buy specific groups of features and ignore others that you don't need. Until now, your only choice was to buy the whole operating system. This often forced you to upgrade your hardware in order to keep up. This situation was similar to MS-DOS before Windows v3 was released: it was all or nothing.

Starting immediately, Apple will sell individual modules that add on to the basic operating system. These modules will include the Open Collaboration Environment (OCE) and a new imaging model for more consistency between different screens and printers. It is also likely that the next version of QuickTime, Apple's multimedia platform, will also be released as an optional module.

Apple also stated its willingness to license many of the modules for non-Macintosh environments, specifically Windows 3.1. It is already discussing such licensing with some third parties, or it may release non-Macin-

Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

➤Kokuyo, Japan's largest office-products company, has signed a dealer contract with Apple Computer. Kokuyo currently uses a five hundred-Macintosh network in house, and has recently opened an in-house information systems training school/showroom facility in Shinagawa, Tokyo, in order to study the market and cultivate new demand.

➤Canon has announced that it will port NeXTStep 486, the 486-based version of NeXT's operating system, to its own 32-bit PC line. In addition, it will make the Japanese-language version of the OS available to other PC vendors in Japan. The operating system will require high-resolution graphics and a hard disk of at least 120MB.

➤Tokyo-based Ergosoft has formed a marketing partnership with Macromind Paracomp, which wanted stronger presence in the Japanese multimedia market. It started marketing an English-language version of Swivel 3D Professional, Swivel Man, and Model Shop II in February, and Japanese-language versions will follow in April.

➤A Tokyo company called Software Japan is now providing an information service on software firms via fax. It will allow users to obtain information by fax in real time, while freeing information providers from having to deal with individual requests for product catalogs and other promotional literature. Information providers are charged approximately $40 per month for five A4 pages' worth of space on the system.

➤Symantec has joined forces with the Tokyo software firm MP Technology, which will localize Norton Desktop for Windows for the Japanese market. In addition, PC Software distributor Softbank will distribute Symantec products through three hundred PC stores across the country. Symantec software for the predominant NEC PC-9801 and IBM DOS/V operating systems is expected to go on sale in July.

tosh versions of the modules themselves. This would allow users of other platforms access to the same features as Mac users, and allow software companies to more easily make programs for multiple systems.

Apple announced that it would port OCE and QuickTime to Windows. There was some disagreement about whether the base operating system would ever be licensed, with Apple Chairman John Sculley denying it but other executives hinting that it might under the right conditions.

During the announcement, Apple also showed many of the features in the next release of QuickTime. Although already well ahead of the MPC multimedia standards for PCs, Apple wants to be sure that anyone interested in multimedia tools will choose a Macintosh. The new features, due this summer, include MIDI (the consumer industry standard for keyboards and other electronic instruments), standard NTSC video for connecting to VCRs and videodisc players, better compression technology for smaller files and faster retrieval from disk, closed captioning on QuickTime movies to help hearing-impaired users, support for the Kodak PhotoCD format, and use of the SMPTE time code for professional editing. There will also be internal support for interactive QuickTime movies so that you can stop a movie and choose different endings.

The announcements went far to allay fears that Apple was betting too heavily on Taligent, its joint venture with IBM. Apple readily acknowledged that Taligent is too far away for Apple to rely on or to assume that many Mac users would want to switch. It is positioning Taligent as a solution for corporations who need to rapidly create new programs, saying that many users will want to use it to take advantage of other new programs as well, but that the base Mac operating system will continue to grow and will always be a challenge for Microsoft.

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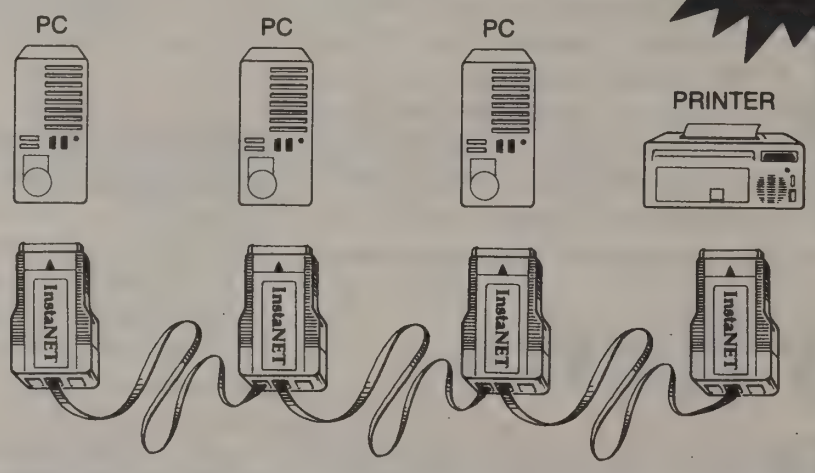

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SILICON GRAPHICS BUYS MIPS

In a move sure to shake up the RISC market, Silicon Graphics Inc. agreed to buy Mips Computer Systems for over $400 million. The deal, likely to be approved by the shareholders of both companies, gives Silicon Graphics much more control over the future of the RISC CPUs designed by Mips and used by Silicon Graphics, DEC, and many other companies.

In the last year, Mips has been losing money and has not kept up with other RISC manufacturers like Sun. Because 80% of Mips' income comes from selling computer systems, not designing chips, it was spending many more resources in that market than in keeping the Mips CPU line competitive. Because Silicon Graphics uses Mips CPUs, it wanted to have more control over their development.

The sale worries many other Mips customers, particularly those who compete with Silicon Graphics. Silicon Graphics will now have total say in what new features get implemented in future versions of the Mips CPUs, forcing its competitors to use those same features or find a different CPU. Fortunately, there are many other RISC chips available, and this move could cause a steady migration away from Mips to other RISC chips. With DEC abandoning the Mips CPUs for its new Alpha series over the next few years, Silicon Graphics needed to either prop up the Mips line or find a new CPU, and it clearly decided for the former. ■

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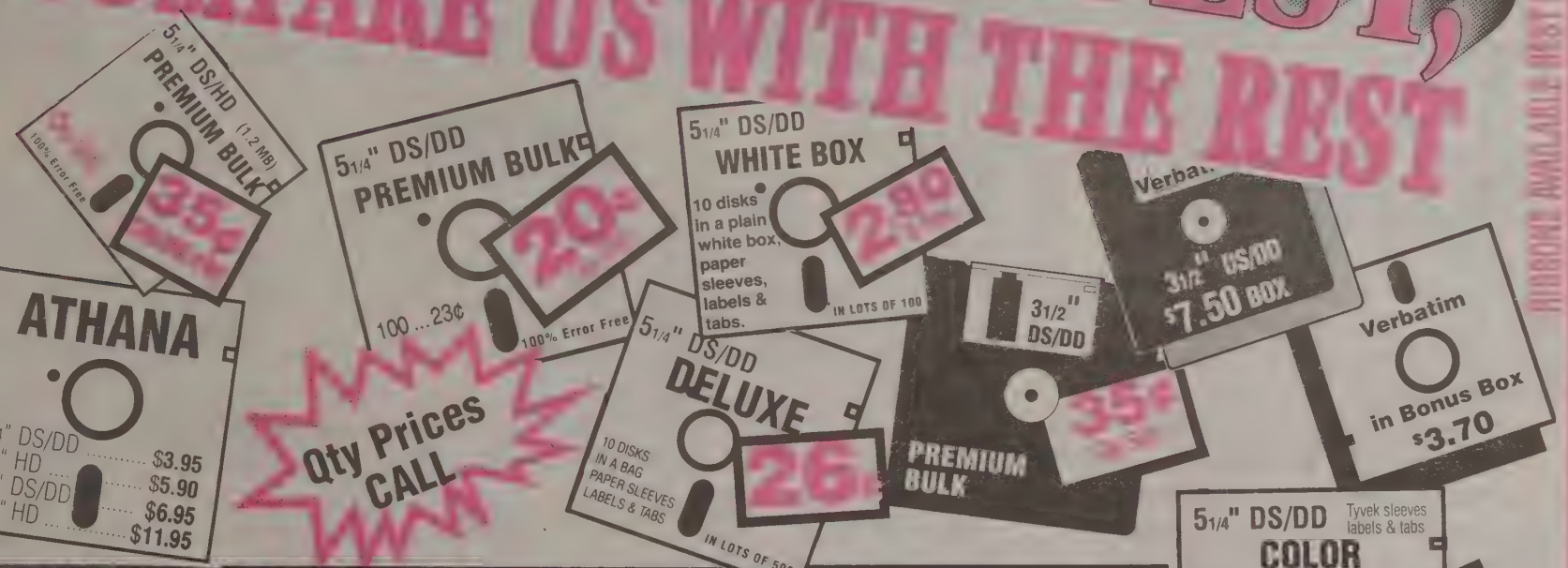

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Selling Storm Socks High-Tech

An onslaught of "sell" orders during the month ended March 13 took the wind from the sails of the recently high-flying high-tech sector.

The bottom line, not surprisingly, was a sharp descent in the Microtimes Stock Index, which suffered a 96-point, 2.4% drop before coming to rest at 388.19. The Dow Jones Industrial Average, on the other hand, recorded a mild setback, falling a modest 10.1 points (.31%) en route to a close of 3235.91.

Turning to the big movers in our most active issues section: Hewlett-Packard took both largest dollar and percentage-gained honors last month. The reason: stronger-than-expected fourth-quarter earnings and sales signaled that company's recent cost-cutting measures are bearing fruit. The result: Hewlett-Packard's stock soared $13.75 a share, or 21.6%, to $77.38.

Conversely, Silicon Graphics took both largest dollar and percentage-lost distinction honor last month. The reason: analysts were concerned that Silicon Graphics' merger with MIPS would hurt SGI's earnings power in the near future. The result: SGI's shareholders stood by as their shares toppled $6.50 a share, or 23.4%, to conclude matters at $21.25. MIPS closed the month at $13, up $1.88 a share, or 16.9%. Separately, Silicon Graphics completed a 2-for-1 stock split last month.

Oracle was very actively traded last month amid reports that its third-quarter earnings report, due March 24, may prove disappointing. Investors quickly took an axe to the share price of the software concern, carving out a 16.1% loss for the company. Oracle closed the month at $17 after hitting a 52-week high of $21.13 earlier in the monthly trading session.

In similar fashion, AST Research stumbled sharply after analysts cut their earnings estimates for the company. As a result, AST's shares contracted 15.9% before calling it quits at $17.25.

Lotus had a stellar month, rising a robust 18.9% to $38.63. Developments at Lotus last month included positive comments regarding the company's new SmartHelp software program, together with "buy" recommendations on the stock from Morgan Stanley and Cowen.

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 02/14/92	CLOSING PRICE 03/13/92	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	PRICE/ EARNINGS RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	52 WEEK HIGH	52 WEEK LOW
SOFTWARE												
OTC	Adobe		ADBE	58.00	52.00	-6.00	-10.34	23	0.32	0.62	68.50	41.25
OTC	Aldus	(L)	ALDC	32.75	28.00	-4.75	-14.50	18	0.00	0.00	59.88	28.00
OTC	Autodesk	(L)	ACAD	24.75	29.75	5.00	20.20	13	0.48	1.61	62.25	23.25
OTC	Borland		BORL	73.00	67.75	-5.25	-7.19		0.00	0.00	86.75	39.50
OTC	Informix		IFMX	30.50	26.00	-4.50	-14.75	32	0.00	0.00	33.00	4.88
OTC	Lotus		LOTS	32.50	38.63	6.13	18.85	39	0.00	0.00	40.75	18.00
OTC	Microsoft		MSFT	118.50	121.00	2.50	2.11	40	0.00	0.00	133.25	60.50
OTC	Novell		NOVL	59.88	58.75	-1.13	-1.88	48	0.00	0.00	65.00	22.63
OTC	Oracle	(H)	ORCL	20.25	17.00	-3.25	-16.05	68	0.00	0.00	21.13	7.00
OTC	Software Publishing		SPCO	22.88	24.63	1.75	7.65		0.00	0.00	29.13	12.50
OTC	Symantec		SYMC	44.25	44.25	0.00	0.00	60	0.00	0.00	51.00	19.50
HARDWARE												
OTC	Apple		AAPL	64.13	63.13	-1.00	-1.56	24	0.48	0.76	73.25	40.25
OTC	AST Research		ASTA	20.50	17.25	-3.25	-15.85	8	0.00	0.00	32.75	14.50
NYS	Commodore		CBU	14.88	14.38	-0.50	-3.36	8	0.00	0.00	21.63	10.13
NYS	Compaq		CPQ	31.50	28.75	-2.75	-8.73	20	0.00	0.00	67.00	22.13
NYS	Digital Equipment		DEC	59.63	59.88	0.25	0.42		0.00	0.00	76.88	48.50
OTC	Dell	(H)	DELL	32.38	35.50	3.13	9.65	17	0.00	0.00	39.50	20.25
NYS	Hewlett-Packard	(H)	HWP	63.63	77.38	13.75	21.61	23	0.80	1.03	78.25	44.50
NYS	IBM		IBM	89.75	89.63	-0.13	-0.14		4.84	5.40	128.13	83.50
NYS	Silicon Graphics		SGI	27.75	21.25	-6.50	-23.42	32	0.00	0.00	29.75	13.25
OTC	Sun Microsystems		SUNW	32.38	32.50	0.13	0.39	17	0.00	0.00	38.63	20.75
NYS	Xerox		XRX	79.25	75.25	-4.00	-5.05	19	3.00	3.99	82.25	51.50
NYS	Tandy		TAN	30.00	29.75	-0.25	-0.83	13	0.60	2.02	36.50	23.38
CPUs												
NYS	Advanced Micro Device		AMD	19.38	17.88	-1.50	-7.74	12	0.00	0.00	21.50	8.38
OTC	Intel	(H)	INTC	67.13	64.00	-3.13	-4.66	16	0.00	0.00	68.75	38.50
NYS	LSI Logic		LSI	9.25	8.00	-1.25	-13.51	42	0.00	0.00	12.50	6.50
OTC	MIPS		MIPS	11.13	13.00	1.88	16.85		0.00	0.00	20.88	7.88
NYS	Motorola	(H)	MOT	81.00	75.38	-5.63	-6.94	22	0.76	1.01	82.50	54.00
COMMUNICATIONS												
NYS	AT&T		T	38.63	38.25	-0.38	-0.97	98	1.32	3.45	41.38	32.50
NYS	BellSouth Corp.	(L)	BLS	48.38	45.38	-3.00	-6.20	15	2.76	6.08	54.13	45.00
OTC	MCI	(H)	MCIC	33.63	32.75	-0.88	-2.60	16	0.10	0.31	36.13	24.63
NYS	Northern Telecom	(H)	NT	48.75	46.13	-2.63	-5.38	23	0.32	0.69	49.25	29.88
NYS	Pacific Telesis		PAC	41.00	38.75	-2.25	-5.49	15	2.12	5.47	45.00	38.50

NOTE: SILICON GRAPHICS COMPLETED A 2-FOR-1 STOCK SPLIT
KEY: NYS=NEW YORK • ASE=AMERICAN • OTC=OVER THE COUNTER • (H)=NEW HIGH REACHED IN PERIOD • (L)=NEW LOW REACHED IN PERIOD • (s)=STOCK SPLIT

MARKET DIARY:

		MOST ACTIVE ISSUES:		
ADVANCES	9	LARGEST DOLLAR GAINER	Hewlett-Packard	$13.75
DECLINES	23	LARGEST DOLLAR LOSER	Silicon Graphics	$-6.50
UNCHANGED	1			
NEW HIGHS	7	LARGEST PERCENTAGE GAINER	Hewlett-Packard	21.61%
NEW LOWS	3	LARGEST PERCENTAGE LOSER	Silicon Graphics	-23.42 %

CLOSING QUOTES FOR CHART:

	CLOSE 02/14/92	CLOSE 03/13/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	3984.10	3888.19	-95.91	-2.41
DOW JONES INDUSTRIAL AVERAGE	3245.97	3235.91	-10.06	-0.31
STANDARD & POOR'S 500 STOCK INDEX	412.48	405.84	-6.64	-1.61
N.Y.S.E. COMPOSITE	228.16	224.30	-3.86	-1.69
NASDAQ COMPOSITE	636.43	618.62	-17.81	-2.80

DATE	MICRO TIMES	DOW JONES
08/02/91	3132.83	3006.26
08/29/91	3265.70	3049.64
09/27/91	3216.77	3006.04
10/25/91	3223.68	3004.92
12/12/91	3254.85	2895.13
01/20/92	3961.41	3254.03
02/14/92	3984.10	3245.97
03/13/92	3888.19	3235.91

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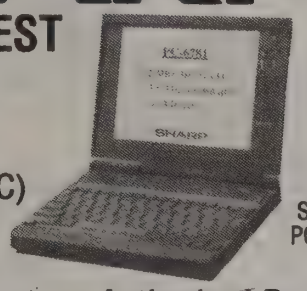

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Modern Customer Service & Tax Instructions To Politicians

BY JIM WARREN

This column concerns what isn't but could be—as soon as we do it.

FROM CALIFORNIANS WITH FERVOR: TAX-USE INSTRUCTIONS TO POLITICIANS

Earlier this year, Realizable Fantasies included a form that taxpayers could use to instruct their federal representatives about how *taxpayers* want their taxes used and requesting that information for computerized summary and online publication. Various readers of California-based *MicroTimes* asked for a similar version for our state—with

REALIZABLE FANTASIES

interest increasing as the Ides of April approach.

(Did *you* know how your state allocates funds? I didn't.) And now, back to techno-chatter:

CONTACTING THOUSANDS OF QUALIFIED CUSTOMERS

Copyright © 1992 by Jim Warren, 345 Swett Rd., Woodside, CA 94062. All rights reserved. *Jim Warren founded* InfoWorld, *the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various computer trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.*

He organized and chaired the 1991 First Conference on Computers, Freedom & Privacy, sponsored by a dozen nonprofit and industry organizations, and is a member of the board of directors of Autodesk, Inc.

Obsolete technology: Horse-'n'-carriage computer companies *only* handle customer queries and technical support via telephones and snailmail (paper mail)—though some are nice enough to provide toll-free telephonic waiting rooms. Therein, you obediently await the company's convenience, often subjected to unwanted product pitches and distracting Muzak—sometimes even when you're paying for the call.

More considerate companies permit you to leave your number, perhaps after a short wait. Then you and they play phone-tag during the following days and weeks. Who knows—by the time they catch up with you, you might still remember why you once wanted to be their customer.

More modern companies also offer customers *online* access. Itty-bitty teeny-weeny companies only do it via local in-house bulletin board systems (BBS), using spare personal computers—they may even have more than one phone line. You pay for the call, or they might be connected to the international Fidonet, and you might find local access to that bumpy-but-free net via a local bulletin board system (see back pages of any *MicroTimes*). Fidonet is a cooperative anarchy, without a manager, that connects tens of thousands of BBSes. It's often faster than snailmail.

Other companies require that you contribute to the profits of high-priced spreads such as Compu$erve or Plodigy, etc., where you can wade through their answers to queries from multitudes of other customers. And they usually get a kickback, uh, commission from your visits to their forums in those platinum-priced commercial online services. Thus (as always) you pay for your customer support. Of course, companies charging for support always reduce the purchase price of their products, since they don't build support costs into their initial product price. Uh huh.

REAL COMPANIES OFFER REAL SERVICE

It's time for most companies to do what the best ones do: *Modern* service-oriented companies accept electronic mail from you via the global computer matrix, often called the Internet. You can access the Internet through numerous low-cost online service companies. Many offer access to email—and much, much more—for about $20/month, often via a local phone call, sometimes at 9600 baud. Examples include The WELL (415/332-4335), Netcom (408/554-8649), or Portal (408/973-9111), all of which offer nationwide access (free or toll).

The Internet—another leaderless co-op anarchy—is a network composed of about five thousand interconnected computer networks. It serves fifteen to twenty million users or more—dwarfing the size of the expensive, limited commercial services. And the number of users is escalating at a rate much faster than the explosion of personal computers since the mid-'70s.

EMAIL: GREAT FOR CUSTOMERS; CHEAP FOR COMPANIES

Electronic mail is informal, practical, and *fast*. It can arrive in less time than you would wait on hold. No phone tag; no envelope; no

Let's ask computer makers to offer compatible keyboards that exactly match those of their competitors—just as though they were trying to serve their customers. Various "standard" versions could include locations for the Mac's command and option keys.

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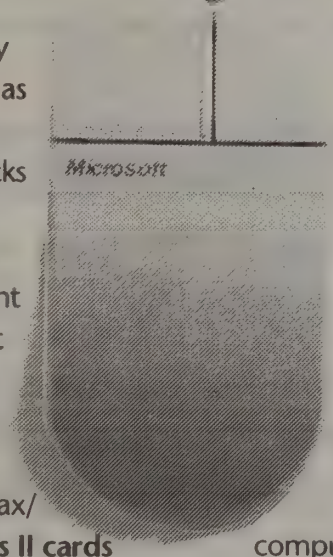

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paper; no stamp; no U.S. Snail Service. It can be sent at any time of the day or night, avoiding time-zone and weekend problems. Questions and comments can be drafted offline, carefully and completely, often including examples, and you never need a printer.

Often, the (service-oriented) company can quickly customize a reply, cutting and pasting from prefab explanations, often including examples—a much more efficient use of customer support staff. Responses to multi-part queries can be inserted into your original questions, item by item; no retyping of your queries or comments, since they arrived in machine-readable form. If you require expertise beyond that of the person processing your email, they have the time and net connections to easily seek answers from a qualified guru; no pressure to guess. Even if the guru is in another building, state, or nation.

It's trivial to copy suggestions or questions illustrating problems worth mentioning to a manager or programmer/engineer, to those who should see them. No illegible notes; no inaccurate summaries of comments during frantic or furious phone calls.

Suggestion: Clip this and send copies to the Customer Service Manager of every computer company you have to telephone. And check *your* organization: Is it obsolete—or does it accept Internet email from potential and current clients?

KOMPATIBLE KEYBOARDS

Lots of folks work on multiple computers. Most become "multi-digital"—that's the fingertip counterpart of multilingual—where they force their hands to learn the numerous subtle, error-producing differences between alien keyboards. Not just different key placement, but tiny changes in horizontal and vertical placement, differently shaped keys—all carefully designed to infuriate the user. (Why does the Mac extended keyboard put the caps-lock key where Buddha intended the control key to be? Dumb!)

So let's ask computer makers to offer *compatible* keyboards that exactly match those of their competitors—just as though they were trying to serve their customers. Various "standard" versions could include locations for the Mac's command and option keys.

Delightfully, Key Tronic already does this for a Mac and PC. Even jazzier, some of their keyboards allow plug-in bar-code scanners, have on-board trackballs, and also offer an innovation worth special mention:

Key Tronic offers a "KeyMouse"—in any of several key-layout locations. Press down on it, and it's a normal key. Wiggle it in a 360-degree lateral direction, and it's a pointing device, a tiny joystick. *Neat* idea! (Key Tronic, Spokane WA, 800-262-6006)

Now, if they'd just offer a common standard of all the options on keyboards for PCs and Macs and SPARCs and Silicon Graphics and ...

SHARE INTELLECTUAL PROPERTY

Send your fantasies for realization to Realizable Fantasies, 345 Swett Rd., Woodside, CA 94062, or by email to *jwarren@well.sf.ca.us*. Published proposals will be attributed to their authors, unless anonymity is requested. ■

Continued on page 110

Economic Times are Tough — Share Your Computer Resources

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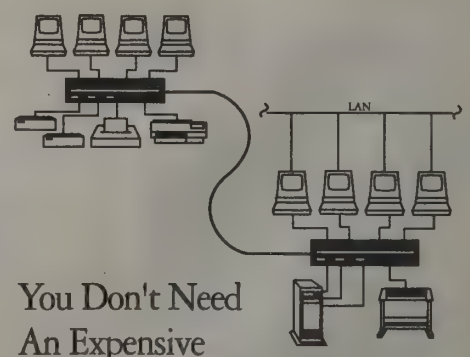

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BUSINESS SOLUTIONS

A Handful Of Palmtops

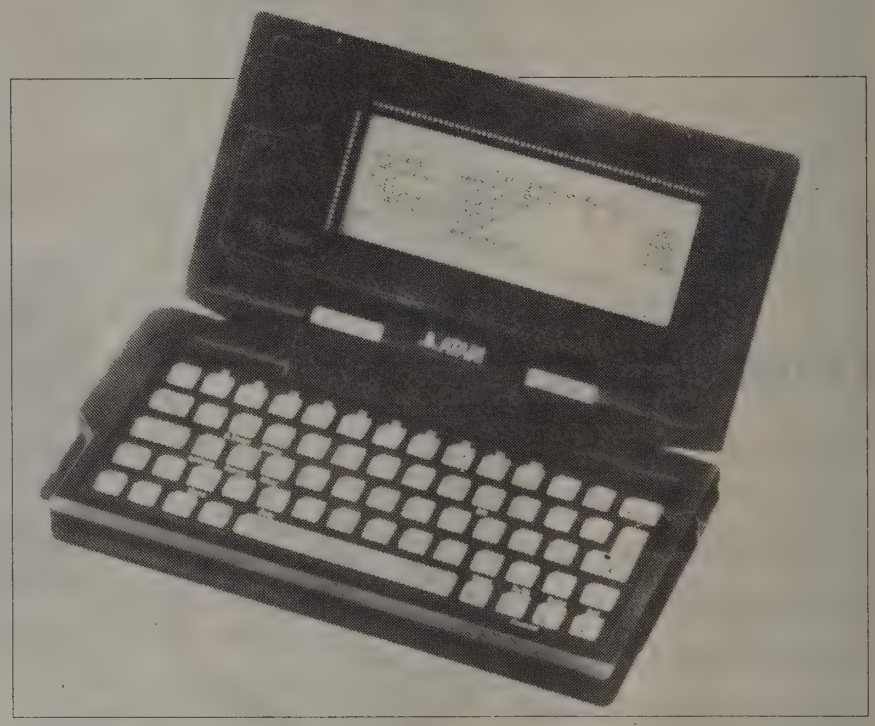
They Probably Won't Replace Your Desktop Machines, But These Hand-Held Computers Are Useful Tools

BY ED KAHN

Portable computing has come of age, and we've gone from luggables to laptops to notebooks. Are palmtop computers the final frontier?

They weigh less than a pound. They fit in the palm of your hand. Their capabilities are touted to rival those of full-size computers. The specs are promising and the power formidable, but are these little guys going to claim a significant share of the market in years to come?

Right now the technology is sufficiently well developed that people are rushing out to buy these little powerhouses. There are currently three palmtops on the market, and a host of others waiting in the wings. The number of support products suggests that there is a significant market for these machines.



Atari Portfolio

THE ATARI PORTFOLIO

The oldest of the entries is the Atari Portfolio. It weighs just over a pound (including batteries) and measures 7.75" x 4" x 1". Atari introduced this unit several years ago and it boasted considerably more power than the electronic organizers like the Casio B.O.S.S. and the Sharp Wizard—all the features of these pocket organizers, plus capabilities of MS-DOS computers.

The Portfolio comes with a number of applications: an address book, a diary/daily scheduler, a text editor, a calculator, and a spreadsheet. In addition, you can buy a number of other applications like BASIC and sophisticated financial applications. But in the end the computer is not a standard MS-DOS machine, although it's close enough for most purposes. It comes with only 128K of RAM. And finally, its small screen displays only 40 columns by 16 lines—considerably less than the displays we've come to expect on laptop and notebook computers.

In its favor, however, is your ability to modify and expand the unit. You can, for instance, add more RAM. The basic technology of all of these little units is that they rely on credit-card-size RAM and ROM cards for applications not built into ROM and for additional data storage. The basic applications are all built in, but if you want additional programs or room for storing data, you add cards that slip in the side of the computer. All of these units have fairly straightforward methods for downloading and uploading to a desktop PC. The Atari also allows you to connect to either a serial or a parallel printer and an external modem.

In theory, you can do almost anything with this computer, but there are in fact serious limitations. The limitations are not the fault of the Atari Portfolio design, but rather the consequence of the whole concept of a palmtop computer.

First, the screen is small and not backlit. One of the great things about these small machines is that they run for a really long time—weeks—on a couple of penlight batteries. This would not be possible if the screen were backlit or other features were added that made heavy demands on power.

A second limitation is the size of the keyboard. No matter how well you design a machine that measures only a few inches wide, you will not be able to include a keyboard that allows rapid entry of data. So if your interest is in serious word processing, forget these machines.

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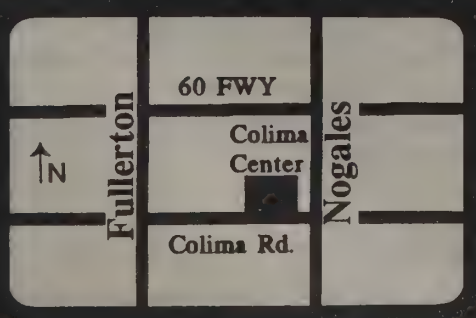

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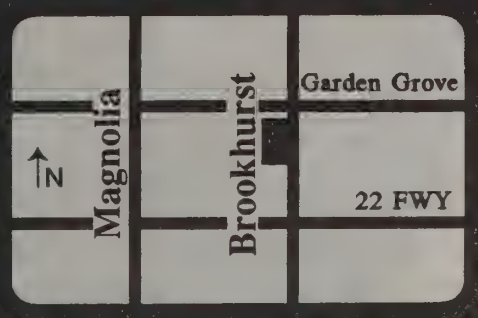

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pabilities, then consider the Portfolio. Its spreadsheet, by the way, creates files that are compatible with Lotus 1-2-3. Its price of $299.95 is certainly reasonable.

If you need more power, however, take a look at the Hewlett-Packard 95LX.

RESOURCES:

Atari Portfolio, $299.95
Atari Computer
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(408)745-2000

Hewlett-Packard 95LX, $699.95
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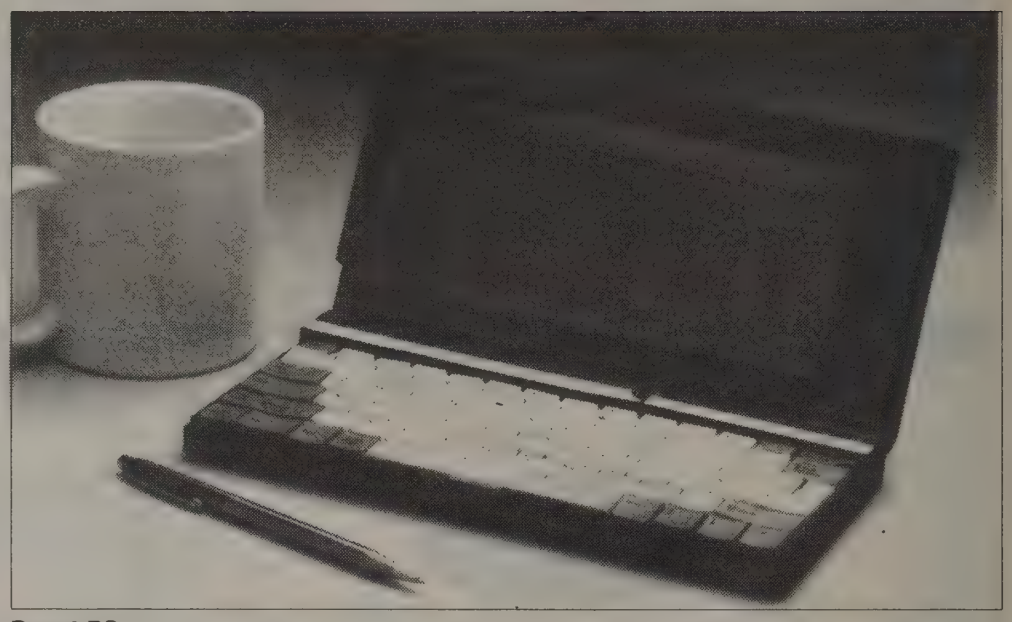


Poqet PC

THE HP 95LX

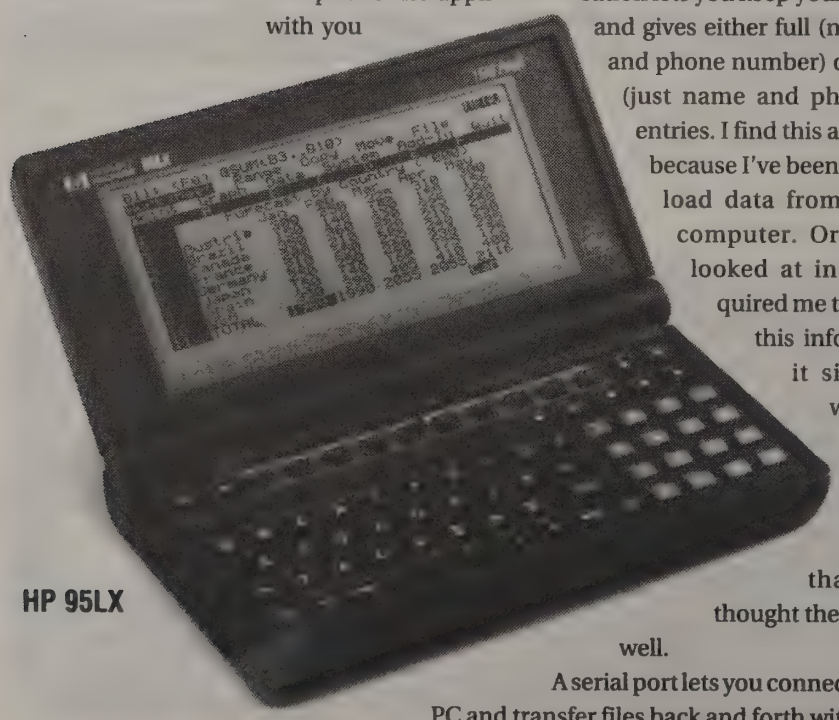
The 95LX is currently the machine to beat. Its sales, while not officially announced, appear to be phenomenal. More than a thousand applications and support products are on the market or in the pipeline by third-party vendors.

There are good reasons for the machine's popularity. It's small—about 6" x 3.5" x 1"—and weighs just ounces. It is powered by two AA batteries, which last weeks, and backed up by a lithium battery that will keep all of your data when you change the regular batteries. A neat little gauge displays on screen so you can check the condition of your batteries.

What really sets the 95LX apart is that it comes with Lotus 1-2-3, built into ROM so your entire 512K of RAM is available for data. But in addition to the spreadsheet, there are a number of other built-in applications. A calendar program lets you organize your time and has a number of features that let you do more than simply enter appointments—you can program in repeating events by the week, month, or year. You can attach notes to any of the entries. In the past, I preferred a paper calendar and made fun of people who carried electronic organizers, but this one is superb. In the weeks I have been playing with this computer, I have actually grown to love the scheduler, and have stopped carrying my pocket notebook.

The 95LX also includes a notepad that lets you create simple documents. As on the Atari, however, the keyboard is small, so don't expect to use this to write the great American novel. You'll be lucky to make a few notes for yourself. I find entry so slow on any of these small keyboards that I couldn't consider taking notes in a meeting, for instance, but it's useful for short notes and reminders.

A phone list application lets you keep your address book with you and gives either full (name, address, and phone number) or abbreviated (just name and phone number) entries. I find this a useful feature because I've been able to download data from my desktop computer. Organizers I've looked at in the past required me to reenter all of this information, and it simply wasn't worth the effort. The design of this computer shows that HP has thought the issue through well.



HP 95LX

A serial port lets you connect the 95LX to a PC and transfer files back and forth with an excellent utility developed by Traveling Software, very similar to Laplink Professional. You install the program into the PC, then connect the two machines through the serial cable that comes with the Connectivity Pack ($99.95). This is pretty much a necessity if you're going to get the real benefits of this unit.

You can also use the serial port to connect to a modem or printer, but it's much better to connect via a parallel port if this option is available. You can print directly to a Hewlett-Packard LaserJet printer if you buy a third-party product called JetEye ($129). You hold this gadget next to the 95LX and it lets you print out through the infrared light that is built into the HP palmtop directly onto the LaserJet. This device is advertised as a point-and-shoot interface and works just that simply. Hold the 95LX next to the JetEye and your pages will come rolling out of any model LaserJet printer. If you don't have this device and don't want to print to a serial port, you can transfer the files to your desktop and print from there.

The version of Lotus built into this computer is compatible with 1-2-3 2.2. There are some modifications to make it more useful in this format, but it is virtually identical to the standard v2.2. It will, of course, also work with the new v3.3 ($495).

The 95LX also includes a financial calculator program, for the many users who have used HP financial calculators in the past. It's not just a calculator, it allows you to take information from a spreadsheet and perform financial calculations on the data. You can also do simple arithmetic.

All in all, if you work with spreadsheets in the field, this is a terrific machine. While the machine is too expensive and too awkward to use for serious word processing, it's easy to enter text into spreadsheets. The keyboard is pretty standard, but definitely not designed for text entry—it's strictly a two-finger operation, and certain keys you find on a standard keyboard have been relocated on this layout.

The display is clear, but still only offers a 16-line x 40-character display—not the 25 x 80 format we're used to. For spreadsheets, this works reasonably well; in Lotus there's a zoom feature that lets you blow up graphs and examine parts of them.

If, however, you need a slightly larger machine, there is the Poqet which offers a full 25 x 80 display.

THE POQET PC

Poqet was the first company to come out with a genuine personal computer in a one-pound package. Like the Hewlett-Packard 95LX, it has 512K of RAM, but the Poqet is larger than either of the other two machines—about 4" x 9" x 1"—and therefore has a slightly larger display and keyboard.

But the real advantage of the Poqet is that it can run virtually any

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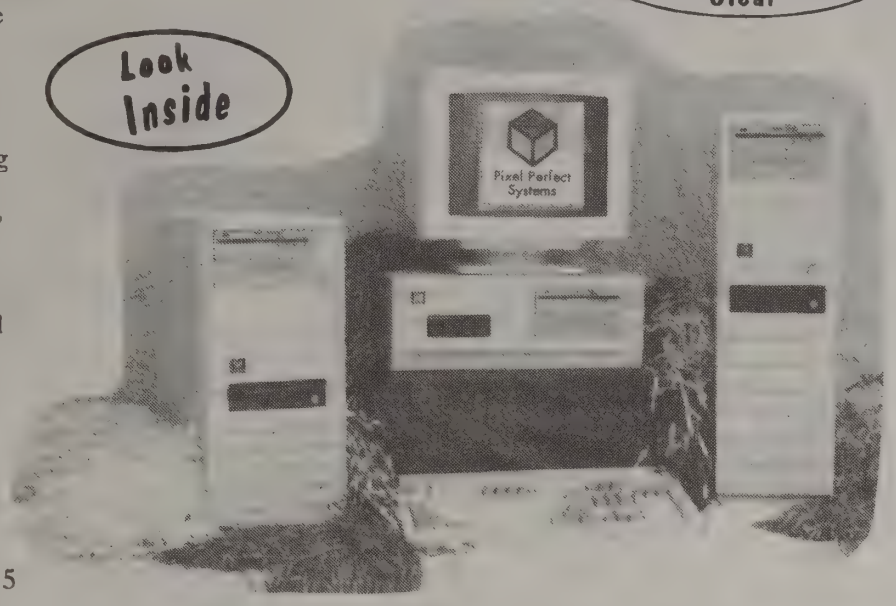

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application from the credit-card-size memory cards that fit conveniently into the slots on either end of the machine. You can either buy programs on cards designed to run on the Poqet or download applications from your desktop or portable.

Poqet recently introduced cards that will hold as much as 4MB ($1400) of data. These cards, which are designed to take the place of disk drives, are preloaded with data or programs through a reader/writer installed in a PC. This will allow users to download large programs or data files. Cards created in this way cannot be erased or overwritten by the Poqet. The company says that larger capacity cards will be introduced as the technology develops.

I tested Lotus 1-2-3 on the machine, and it runs just like it does on a standard computer. For truly determined users who want to use the keyboard for genuine writing, WordPerfect is available on one of the little cards. A wide and ever growing variety of programs is being released in card format for the Poqet.

In addition to the applications on cards, there are also built-in tools similar to those on both the Atari and the Hewlett-Packard units. I did not find the calendar on the Poqet as versatile or powerful as the one on the HP 95LX. And despite the additional size, I still did not find the Poqet large enough to consider as a replacement for a notebook computer. Despite its larger size, I found the display more difficult to read than the one on the Hewlett-Packard palmtop.

Although the Poqet sells for more than twice as much as the Hewlett-Packard machine, price comparison is a bit misleading; the Poqet includes the hardware and software for making transfers between itself and a desktop machine. Also, Poqet includes a 512K memory card ($350) and often has bundled software including Lotus 1-2-3 in its base price of $1450.

CONCLUSIONS

Any of these machines will do a good job at what it's supposed to do. I preferred the Hewlett-Packard machine, but the choice is really personal. You get more flexibility in the Poqet, but you lose a little portability. You do get a more conventional keyboard on the Poqet, but it's still too small to use the machine for genuine writing projects. And finally, I see more support products coming to market for the HP unit. If the HP doesn't offer you what you want and a notebook is too large, then the Poqet is for you.

Are these machines the final frontier? I doubt it. None of them can stand alone and take the place of a larger computer. In some ways, I consider all of them toys—albeit nice ones. I've interviewed several users of these computers, and most seem satisfied with their purchases.

If your emphasis is on spreadsheets, these units are quite handy. And if you really do like to use the built-in utilities, certainly these machines offer more than the electronic organizers. But the future holds even more exciting products.

New machines promise to include hard disks. While that will not make a difference in the keyboard or display, it will go a long way towards making these miniature marvels more like full-size computers. I can envision a future where people have several computers, ranging from desktop units down to palmtops. Each has its place. ■

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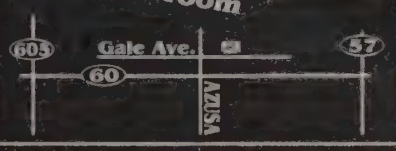

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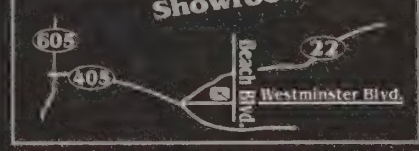

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A System Administrator's Plea—

Software Licensing For The Real World

BY KATE COADY

When my company started computerizing, we discovered that one of the packages we'd purchased was copy-protected. We returned it. Our data and operations are too important to be entrusted to such a fragile safety net as a microscopic dusting of magnetic particles on two slender circles of film.

Today, mechanical copy protection/limitation has largely fallen into disuse in business software, but the problems it addressed—software piracy and unethical copying—remain. So do the problems it caused: the creation of unreliable software bases in which backup, security, and reasonable use are hindered by license requirements.

Some vendors have shifted their attempts to enforce licenses from mechanical methods to audits and the courts. But this approach also has its rough spots. It may not be the ideal way to enforce vendors' rights. (It should be understood at the outset that the points to follow primarily apply to binary licenses for applications programs. Source licenses and system software may be special cases.)

LITIGATION AND CUSTOMER RELATIONS

During a recent discussion of software-copy audits conducted by outside agencies, where permission to conduct the audit might be obtained by the threat of a lawsuit, I stated that if anyone showed up at our company with such a demand, we would be willing to meet the would-be auditors outside, provided they showed up with:

a) the regional head of marketing of the vendor involved;

b) the press;

c) the marshmallows.

We don't see any point in wasting the bonfire we're going to build with the manuals and the master tape; hence the marshmallows.

We'll also port out all our data, and expunge the software package from our own tapes and disks. In order to forestall any future awkwardness, I also promise that that vendor's software will never appear on our system again. Inasmuch as I do the purchasing as well as the installation, I can and will make it stick.

This is admittedly an intemperate response, caused by my profound annoyance with certain aspects of the audit procedure promoted by some organizations: the threat of legal action, the apparent consensus that the audit would proceed on the basis of technical violations of software licenses instead of fair use and common sense, and the expectation that the auditing agency would "request" a contribution to its litigation fund.

Some of you will probably leap to the conclusion that if we object to an audit, it must be because we intend to defraud the vendor. Not so. We intend to make fair and ethical use of every product we buy, and we wouldn't object to a reasonable audit of our compliance with an *intelligent* license. What we object to in the above scenario is a) the arm-twisting, and b) the fact that most of the software licenses I've had the misfortune to read have at least one clause that is unrealistic.

CLAUSES FROM THE TWILIGHT ZONE

A notable example of unrealistic clauses in license agreements is the rather common one allowing the purchaser to possess the master disk or tape and a single copy for backup. In my universe, a single copy is not adequate for backup. Since computer science is really a subdivision of applied murphology (the study of the effects of Murphy's Law), I'd expect a software vendor to know this.

The rotating archive tape backup schedule, in which there are always several copies of installed software in storage, is a standard practice for systems larger than personal computers. It impresses me as absurd that vendors keep writing licenses that violate accepted backup and security procedure.

Why do we keep multiple backups? With a larger system, restoring and reconfiguring the system from the installation tapes can involve days of work. If a crash occurs, you want to try to recover from the most recent backup that's reliable. You may have to go back a few weeks to do this.

Another reason for keeping multiple backups is that it's necessary to make sure that our

As a system administrator, I'm profoundly annoyed with certain aspects of the audit procedure promoted by some organizations: the threat of legal action, the apparent consensus that the audit would proceed on the basis of technical violations of software licenses instead of fair use and common sense, and the expectation that the auditing agency would "request" a contribution to its litigation fund.

Copyright © 1992 by Kate Coady. All rights reserved. *Kay Coady has been responsible for systems analysis, design, implementation, programming, security, and administration for Kay Technical Research since 1985. Current projects include setting up an online technical research service and formation of an archive of security information.*

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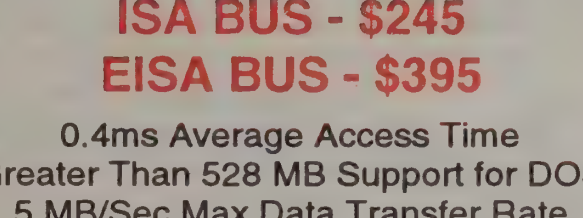

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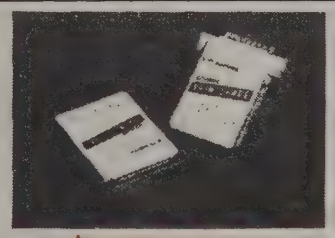

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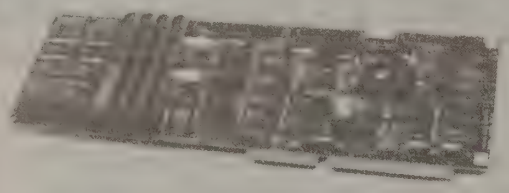

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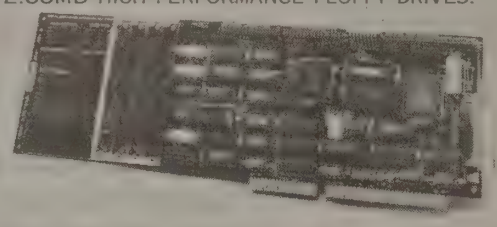

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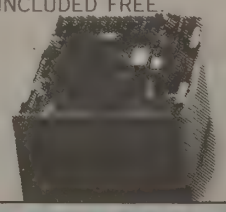

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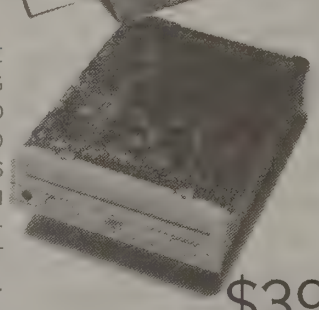

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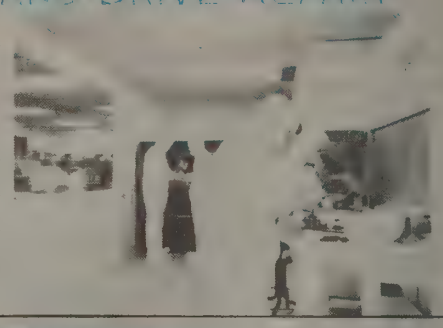

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master disks or tapes will never be inserted into a machine that is suspected of operating in an aberrant manner. At the time we developed this policy, we had a less-than-reliable hardware vendor, and were thinking of disk-eating hardware failures.

We don't worry very much about hardware failures with our current vendor, but our multiple backup policy has gained in importance in protecting our software base, because of the increasing threat of viral attack. We have already had cause to be glad of this policy as a result of the behavior of certain programs on disks supplied by a well-known software vendor.

We have never determined whether the program in question is virus-infected or has a peculiar bug; in brief, copies of the program disk in use would periodically self-destruct by destroying the file system on the disk cluster by cluster. The vendor had no information to offer concerning the strange behavior of the program; the warranty disclaimed liability for anything and everything.

This software vendor, like everyone else, expects not to be sued for shipping us self-destructing software. It's only fair, then, that they realize that we don't have any more confidence in their product than they do.

If they're not confident enough of the virtues of their product to write a warranty including consequential damages if it fails, then they're not confident it won't fail. That means that by any rational standard of conduct, we are also justified in not being confident it won't fail, and taking appropriate disaster recovery measures in case it does.

EVEN STRANGER...

Other common objectionable clauses include central processing unit limitations in multiuser licenses. No one has explained to me why it's an infringement of a vendor's interests to run software with a 16-user license across two 8-user computers connected by a local area network, instead of on a single 16-user machine. Until someone does explain it to me, I'm going to have to assume that CPU limitation clauses impede the development of useful system geometries for no good reason.

In a similar class are licenses where the user is expected to buy the rights for each machine, instead of for each user, on or off a LAN. This can have preposterous consequences. For example, in this setup, if you connect your engineering department, which runs a seat-licensed computer-aided drafting package, to the office LAN so they can send specifications to the laser printer, you're in technical violation if you don't buy a license for every clerk in accounts receivable to draw isometric machine parts.

If you consider applying the same methodology for figuring LAN seat-licenses to wide area networks, you would come to the conclusion that any software on a machine attached to the Internet ought to have a license for every node connected to the Internet.

A similar level of impracticality is achieved by the off-LAN version of seat-licensing, in which moving a program between two different computers used at different times is a technical violation...but you wouldn't be violating the license if you moved the entire computer.

Another problem, relatively minor, is the way personal computer software is licensed to multi-seat users, such as corporations. While it's common for software intended for a multiuser system to be bought with a multiuser license, it's not often you find a PC package that offers provision for buying more than one license per package—usually the buyer is expected to buy a separate copy for every license. This probably impedes the purchase of a correct number of licenses for an organization because psychologically it doesn't make sense in two ways:

a) It's harder to justify the purchase of 128 identical, readily duplicable items to the accounting department than it is to justify the purchase of one 128-user license, and

b) Nobody needs 128 manuals. A dozen would be more than sufficient.

LITIGATION: A TWO-EDGED SWORD

I have doubts about the effectiveness of the audit-or-litigate method from the vendor's point of view, as well. Aside from the damage to customer relations, I doubt the cost-effectiveness of using the courts to accomplish anything that might be achieved another way.

Second, I must confess to some doubts about the effectiveness of physically auditing someone else's premises. Software is, after all, a relatively easy item to make disappear, especially if someone plans on acting in bad faith. Discussion of methods is outside the scope of this article, but encryption and removing the media are two of the obvious ones.

SO WHAT DO YOU DO INSTEAD?

Does this mean that I think vendors ought to do nothing to enforce their licenses or to stop software piracy?

No.

There are methods used by various vendors to stop piracy, methods to which we have had no objection whatsoever. They didn't interfere with reasonable use and security.

We don't object to identification devices which can be moved from machine to machine, which must be present in order for a program to execute. There can be as many backups of the program as needed, but it will only execute when the device is present. (Vendors using this method should be prepared to replace the identification device by next-day air in case of failure.) The device also shouldn't deny use of a needed port, a task easier to accomplish with hardware vendors who have a fondness for daisy-chain interfaces.

We also don't object to multiuser licenses figured for a certain number of simultaneous users. In this kind of arrangement, the program itself can enforce the license. If the buyer has a 16-user license, the program will only allow itself to be invoked sixteen times simultaneously; the seventeenth invocation will fail. You can put a program like this on a LAN without either losing a lot of revenue for lack of enforcement, or doing absurd things like counting seats instead of users.

Combining these methods allows proper system security and the constuction of useful system configurations without impairing the vendor's rights and interests. It is, of course, possible to circumvent such methods, but in the case of binary licenses, it is often economically unfeasible, because combing through undocumented machine language is time-consuming at best.

FINAL THOUGHTS

It's not uncommon to hear on the net these days that we need a comprehensive overhaul of the legal system to deal with issues of intellectual property like those addressed above. I must respectfully disagree.

We all know software companies sue each other endlessly for copyright violations, but there has been, in a lot of cases, a sort of hands-off approach to suing customers (as opposed to blatant pirates) for technical breaches of the license contract.

I'm afraid that if vendors start suing over such matters, it will eventually erode the perception that software is a special case as a product, a perception that's due chiefly to misunderstanding. There is nothing inherently sacred about software that protects it from product liability judgments; there are very few programs that have shipped bug-free. It seems to me only a matter of time, if vendors start suing customers, before the gloves come off in the other direction...If the vendor can sue for breach of license, he can be sued for breach of warranty.

I really don't want to see this. If we destroy the software industry, as we have destroyed so many others, with senseless litigation and regulation, who deserves the blame? ■

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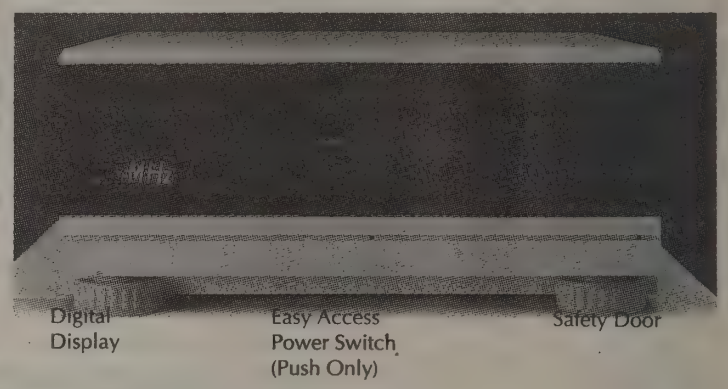
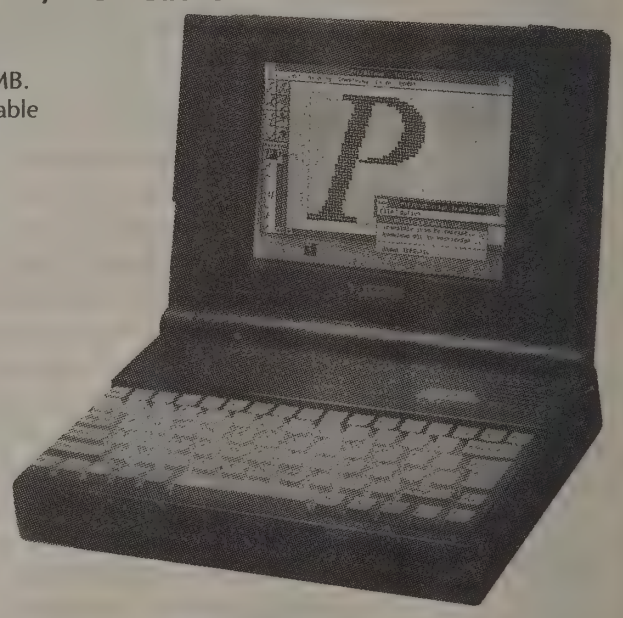


NOTEBOOK 386DXL-25/33MHz w/128K Cache

Call



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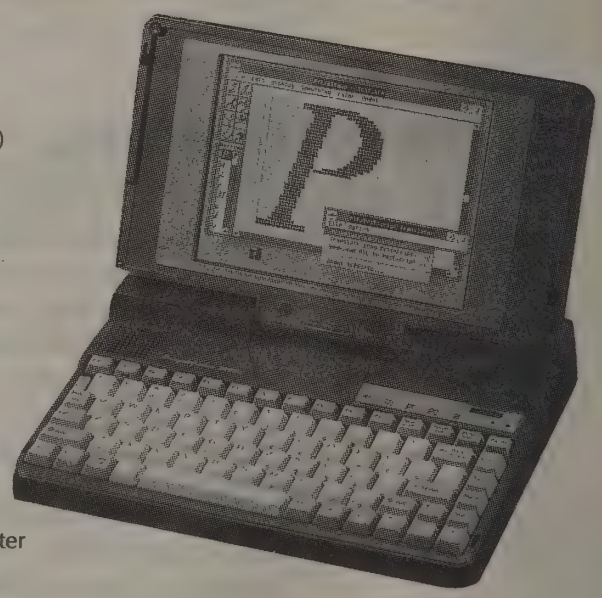

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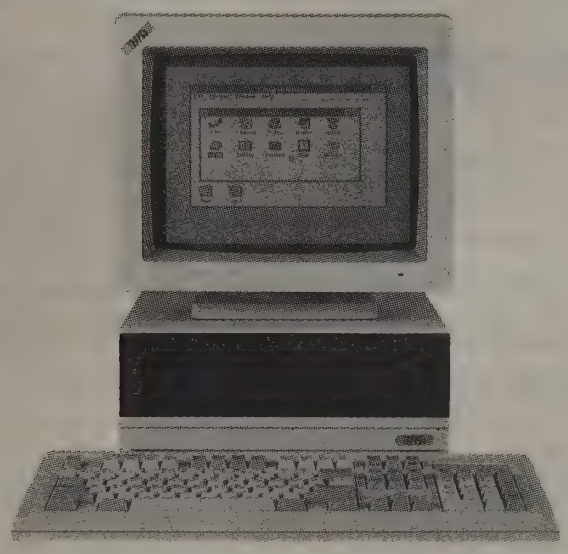

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- 64K cache, expandable to 256K
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- 1 parallel, 2 serial **& 1 game ports**
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- Compatible with DOS, OS/2 & UNIX
- **New Value-Plus Computer Case**

386SX-25 **$969**

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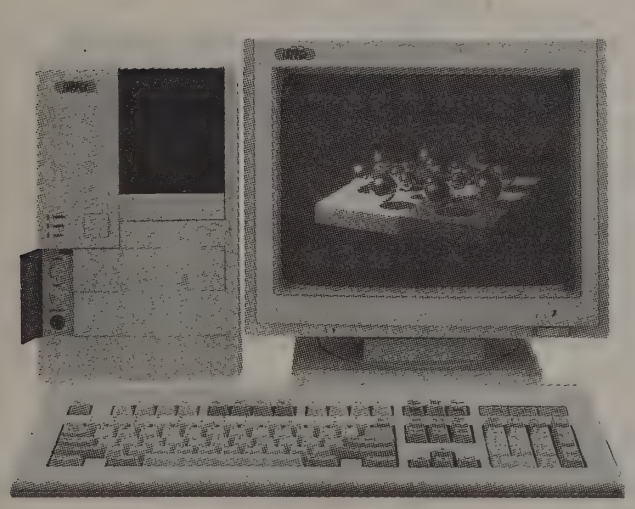
- 14" 1024 x 768 color Super VGA monitor (.28mm)
- 101 key click keyboard
- Compatible with DOS, OS/2 & UNIX
- Desktop case



486DX-33 **$1,745**

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- **Two 32 bit local bus expansion slots**
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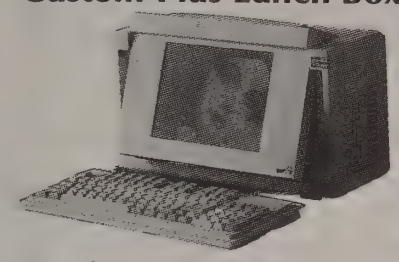
- MS DOS 4.01 or 5.0
- MS Windows 3.0 & serial mouse
- Compatible with DOS, OS/2 & UNIX
- Mid tower case with power supply (220W LED)

Custom-Plus Lunch Box



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Case	Middle Tower

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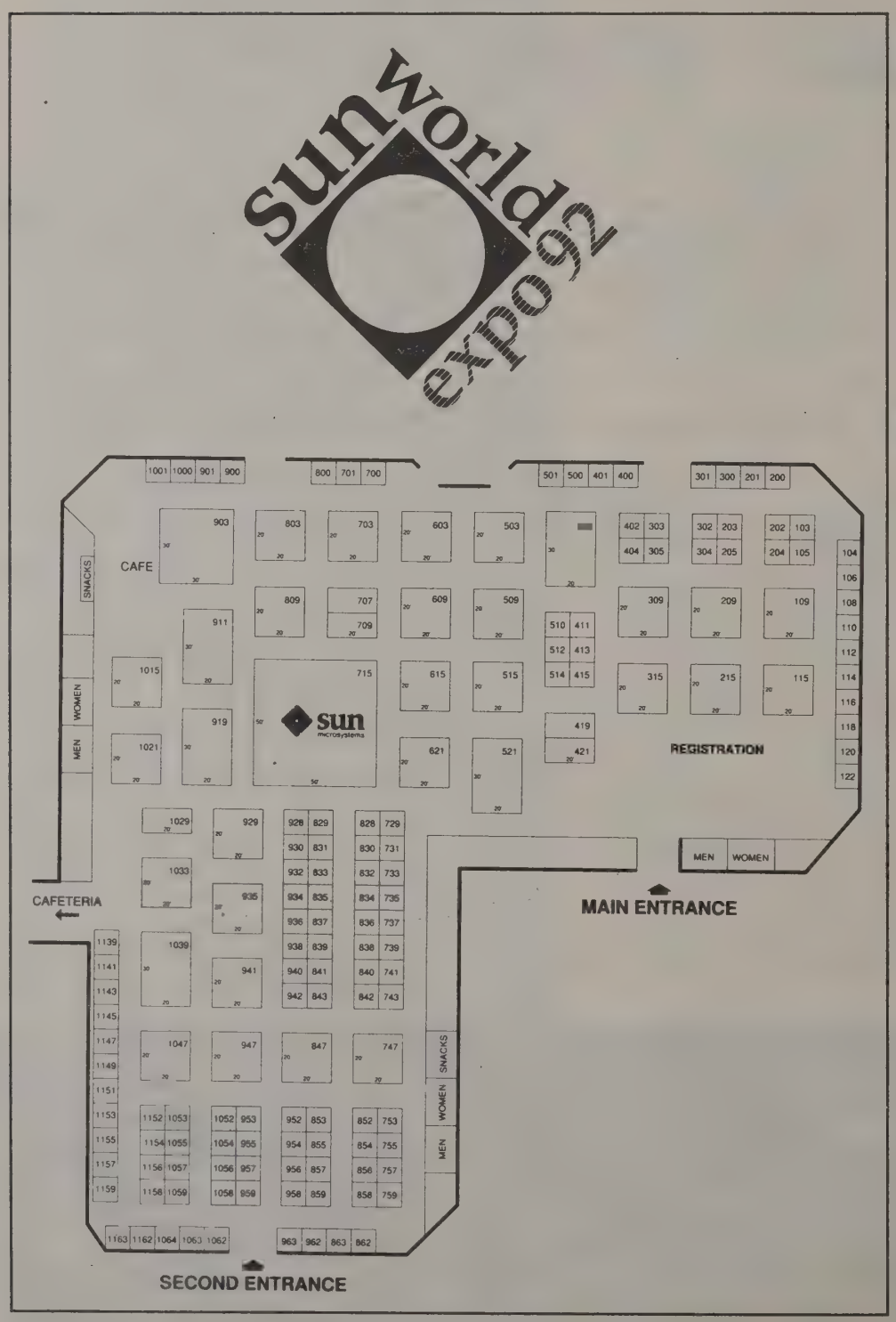

TUTORIALS

Monday, April 6

9 am–5 pm

T1: System Diagnosis for System Administrators
T2: Korn Shell Programming
T3: Practical Networking
T4: Open Windows for Application Developers
T5: SunOS 5.0 Application Migration
T6: SunOS 5.0 Update for System Administrators

CONFERENCE SCHEDULE

Tuesday, April 7

9–10:15 am

SPARC Hardware Directions
Case Study: Workstations in Education at Purdue University
Third Party Mass Storage Options
SPARC Standards and Compliance Directions
Distributed Computing: Approaching Sophistication

10:30–10:45 am

Welcome Address: Robert Duncan, Chairman and CEO, SPARC International

10:45–11:45 am

Keynote Address: Scott McNealy, President and CEO, Sun Microsystems, Inc.

1–2:15 pm

Solaris Operating System Directions
Case Study: Desktop Publishing at the *Houston Chronicle*
Independent Dealers: A Channel for Workstation Products
Graphical User Interface Technology
Networking Issues for the '90s

2:30–3:45 pm

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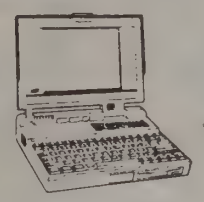

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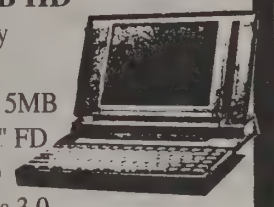

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- MS Windows 3.0
- EVEREX Mouse
- Carrying Case

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- 80486-33MHZ 64K Cache Motherboard
- 4MB RAM Expandable to 32MB
- Tower Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2MB Floppy Drive
- TEAC 1.44MB Floppy Drive
- 120MB Hard Disk
- Serial/Parallel/Game Card
- Super VGA 1024x768 Monitor & 1MB Card
- 101 Keyboard

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IBM External 2400 Baud	105
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SPARC Systems in Non-Technical Applications
Multimedia for Workstations
Alternatives for Service and Support
Tools to Achieve Distributed Computing

Wednesday, April 8

9–10:15 am

SPARC Laptop and Notebook Implementations
Case Study: Global Networking at Northwest Airlines
Third Party Peripheral Options
Bridging Computing Environments
Client/Server Computing in Action

10:30–11:30 am

Keynote Address: Ray Noorda, President and CEO, Novell, Inc.

1–2:15 pm

Value Added SPARC Compatible Products
Emerging Software Trends for Document Management
SPARC vs. RISC Alternatives
Strategic Buying Criteria in an Open Systems Market
Connectivity/Interoperability Surmountable Obstacles

2:30–3:30 pm

Plenary Session: Workstation Market Review and Outlook—Vicki Brown, Vice President of Systems Research, IDC

3:45–5 pm

High-End SPARC Implementations
Personal Productivity with Workstations
Sun's VAR Policy
Diskless Nodes vs. X Terminals
Improving Network Performance

Thursday, April 9

9–10:15 am

The Experts Forum: Industry Issues & Trends—Dr. Egil Juliussen, Chairman, Workstation Labs, Inc.

10:30–11:45 am

Comparing RISCs: What Are the Meaningful Differences?
Case Study: Financial Info Management at the Boston Stock Exchange
Directions for Servers
The Role of Network Management

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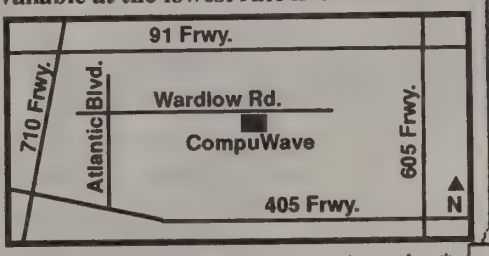

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Word Processors For Windows

Finding The One That's Right For You

BY WOODY LISWOOD

With the arrival of WordStar for Windows and Microsoft Word for Windows, the word processing field has become crowded, interesting—and somewhat confusing. Deciding which one to use and why requires considering a number of factors. Let's take a look at the leading products and what they do best.

WHY WINDOWS?

The first question is "Why a Windows word processor?"

My own response is that I like a WYSIWYG environment where the text and graphics on the screen look the same as they will when the page is printed. Many folks complain that Windows is slower than DOS for word processing, which is true enough, but there are two additional considerations.

If you need WYSIWYG, Windows is the way to go. Second, speed is relative. For most activities, DOS and Windows will appear about the same. Most of us can't type as fast as the computer can accept keystrokes. If you have at least a 25MHz 386 machine, you will probably feel that most normal Windows word processing activities are as fast as their DOS-based counterparts.

All the major packages are now available under Windows—AmiPro, WordStar for Windows, Word for Windows, and WordPerfect for Windows. There are additional products, but they are not as capable and, for my purposes, not significant players in the Windows word processing marketplace. Windows touts ease of use through a common GUI environment, so I don't believe the simplified "executive type" word processors sold in the DOS market will have a significant impact in the Windows environment.

EVERYTHING'S GOOD, NOTHING'S PERFECT

Each of these word processors has some features the others don't, any one of which might be the deciding factor for you.

AmiPro: Lotus's AmiPro currently leads the market and is my personal choice. AmiPro has the best user interface around, and a feature set which covers at least 99% of what the most sophisticated user would want from a "word publisher." The AmiPro WYSIWYG menu system for creating and controlling styles is simply fantastic, easy to use, and obvious to the most casual user. The AmiPro user-customizable smart icons have been copied by all of the competitors.

Word for Windows: The new v2.0 is dynamite. Like AmiPro, Microsoft's program is easy to use and understand, and has all the features that a word publisher needs. My perception is that Word for Windows is slightly smoother and faster that AmiPro.

It has a couple of features I like better than what's available with AmiPro. First, you can highlight a block of text, then drag it to a new location. That, in my opinion, is better than the cut and paste methodology used by all the others. I also like the spelling checker/grammar checker combination in the tools menu.

If you need WYSIWYG, Windows is the way to go. Second, speed is relative. For most activities, DOS and Windows will appear about the same. Most of us can't type as fast as the computer can accept keystrokes.

I don't like the fact that WinWord is not a truly WYSIWYG product. To put a line around a page, you must insert a transparent page size block in an ongoing header—and then the only place you see the lines is in the header, not around the page shown on screen until you go to page preview. I also find WinWord's mail merge feature less easy to use than AmiPro's.

WordStar for Windows: WordStar for Windows has fixed up the NBI Legend interface to make it easier to use, but still doesn't have the customizable icon bar featured by all the competition.

One real boon to the touch typist, though, is that WordStar does have an option to configure the keyboard back to the WordStar-for-DOS cursor commands (or WordStar 2000, if you remember that product). You can do almost everything without having to move your hands off the keyboard. (You do have the Control Key next to the A key, don't you?)

I also like the way WordStar for Windows does drop caps. What I don't like is the way it uses a frame metaphor for everything, requiring you to remember what frame you want to manipulate when you want to change styles, or create changes on a global basis.

WordPerfect for Windows: My feeling is that this first Windows release of WordPerfect is schizophrenic—part DOS, part Windows. WordPerfect has taken its DOS product and moved it to Windows, essentially. Which is fine if that's what you want, but it doesn't really take advantage of the Windows GUI environment.

It is not a WYSIWYG product. Headers and footers are not displayed on screen. However, it does have excellent text control, and I expect that as the WordPerfect Windows group gets more experience and feedback from the users, WordPerfect for Windows will become a real contender.

THE CHOICE IS YOURS

So, what to do?

I like AmiPro for everything. Its mix of features, ease of use, and mail merge flexibility should work for everyone. With the exception of some WYSIWYG problems, Word for Windows also has everything for the end user. When you're shopping for software, I recommend trying AmiPro and Word for Windows—they both work, and you can't go wrong with either.

WordStar for Windows gets my nod if you *must* have a WordStar keyboard. WordPerfect for Windows is there if you *must* transfer from DOS to Windows and want the same product in both places. ■

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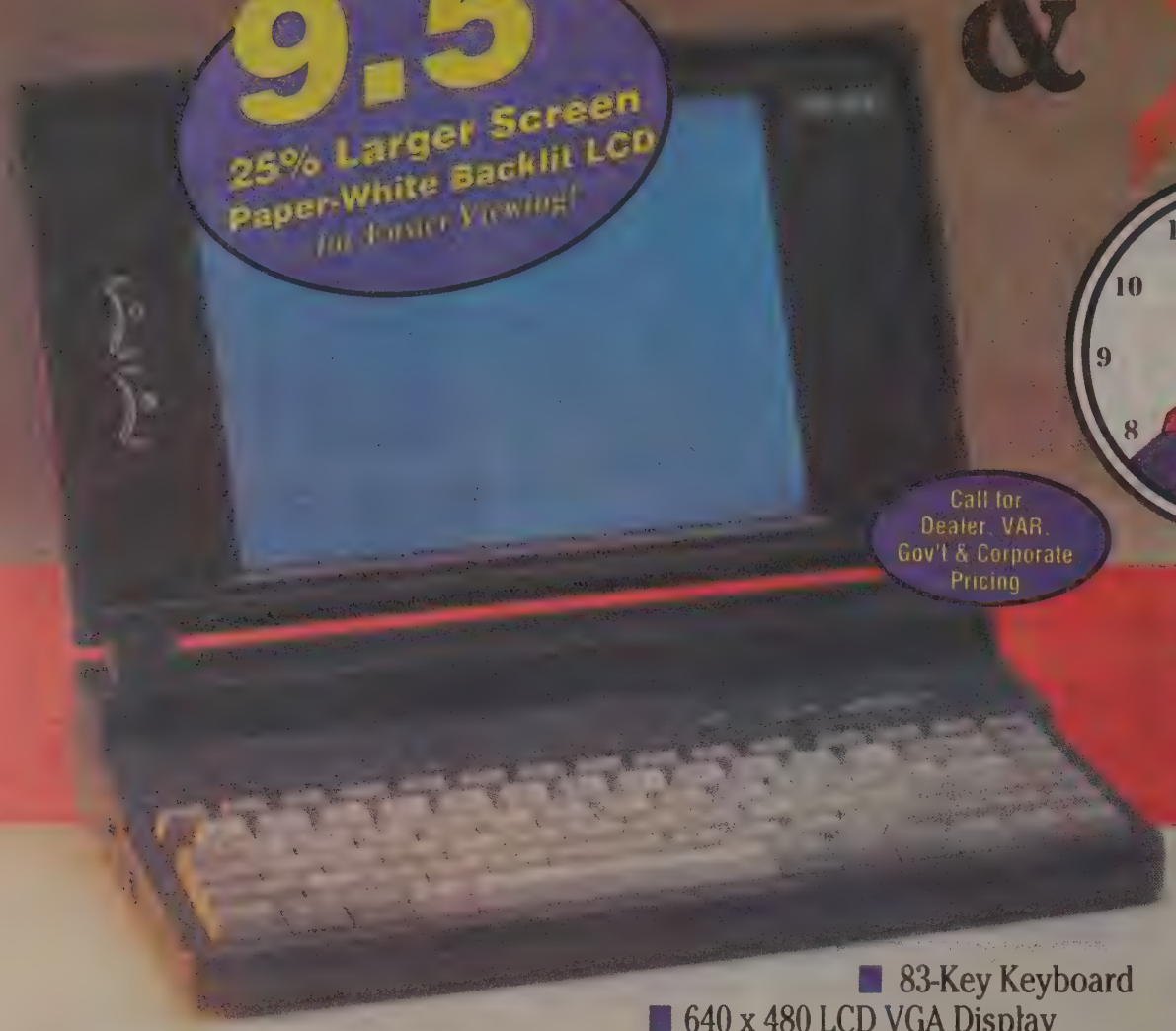

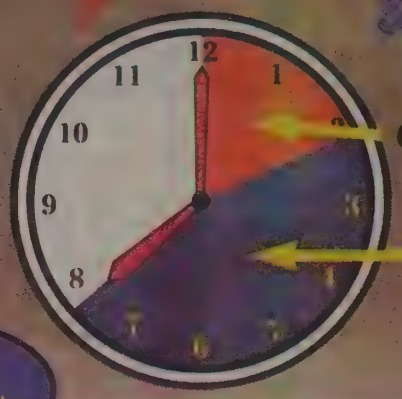

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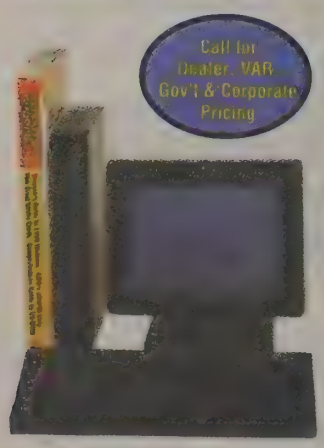

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Network Diagnostics

From Nonexistent Mouse Drivers To Omnipresent Viruses, Magee's Network H.Q. Offers Fast Troubleshooting

BY WAYNE A. YACCO

I'm back to network administration this month. Blame it on the economy. Blame it on Scott Kuklin.

Kuklin is a senior business systems analyst for one of the major television networks. He uses an inventory program to administer a token-ring network with five servers (running NetWare 3.11) and five hundred PC nodes. Despite the size of this network, though, no one is assigned to administration full time. Kuklin recently told me, "It's kind of a part-time job for three people," pointing out what may be a growing problem in today's business climate—more machines and fewer administrators to manage them.

Utilities are becoming essential. So, if you're still looking for a network management tool, I have a couple of additional choices for you this month—one for the PC and another for the Mac.

Copyright © 1992 by Wayne A. Yacco. All rights reserved. *An editor, writer, and consultant specializing in microcomputers and their business applications, Wayne Yacco writes articles, columns, and reviews for many trade and business publications. He can be reached at PO Box 269, Burbank, CA 91503.*

LOCAL AREA NETWORKS

MAGEE'S NETWORK H.Q.

First, for the PC, Magee Software is due to ship a new release of Network H.Q. by the end of March. In v2.0, H.Q. will add significant new features. In particular, it will now inventory software as well as hardware, and it will support Banyan Vines, MS LAN Manager, and most Net BIOS networks (in addition to Novell NetWare 2.11 or later).

Second, for the Mac, it's also Network H.Q. Version 2.0 includes a System 7-savvy INIT that runs on each Mac. There is at least one other product that lets you collect heterogeneous network data on PC servers, but 2.0 is distinguished by its thoroughness. It tells you a lot more than just the fact that there's a Mac node out there. H.Q. reports the type of Mac (including PowerBooks), system memory, Color QuickDraw, processor, coprocessor, hard disks, and more.

You license Network H.Q. for your PC server, and use it to collect data on your workstations. Everything's stored in an ASCII-delimited database. And it's not a memory-stealing TSR on the PC nodes. The file resides on the server and gets executed from the login script. So, your hardware database is always current as of the latest login. H.Q. reports all drivers in the device chain, and lists those it recognizes by name. You can use it to get the user name; network number; card address, configuration, and options (RAM, ports, DMA, IRQ); shell version; and IPX/SPX version. Exception reports (Warning Logs) allow you to set up minimum requirements for things like DOS, the net shell, IPX, mouse driver versions, free DOS memory, EMS, free disk space, and equipment changes. In v2.0 you can also examine system startup files, or any file, for changes.

Because earlier versions of H.Q. have lacked a software inventory, Magee has compensated by providing it with precise hardware reporting. For example, claims products manager Randall DePriest, "Nobody else can tell the difference between a 386SX and DX, or a 486SX and DX." H.Q. not only reports the presence of a coprocessor, but the brand. Some machines are reported right down to the model number. Version 2.0 "should recognize over 200 models by its release," says DePriest. And, although your computers will think they have three parallel ports whenever a network shell is loaded, Magee claims that H.Q. will always determine the true number. DePriest attributes much of H.Q.'s accuracy to methods that don't rely on querying dip-switch settings—

When one network manager called to report a malfunction of the software, it turned out that what he thought was misreporting of system memory was actually the presence of the Stoned virus. H.Q.'s diagnosis prevented the infection from spreading to the entire 230-machine network segment.

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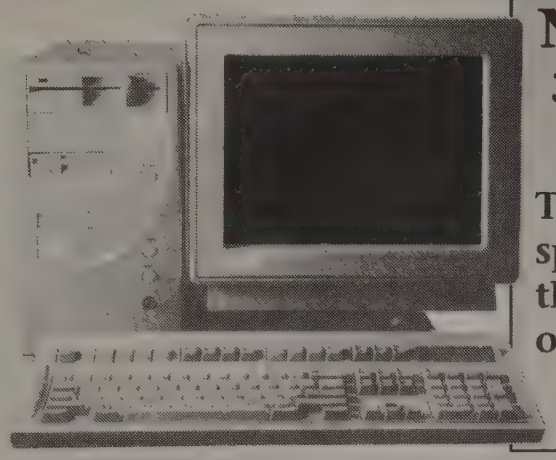

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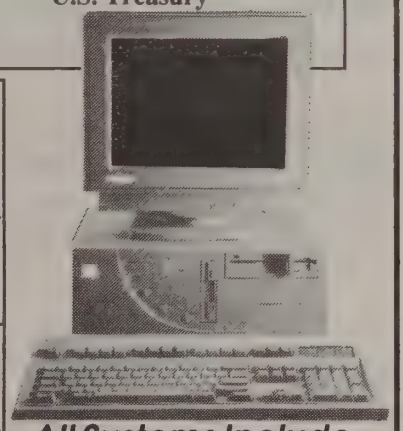

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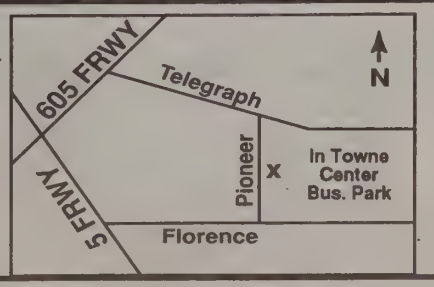

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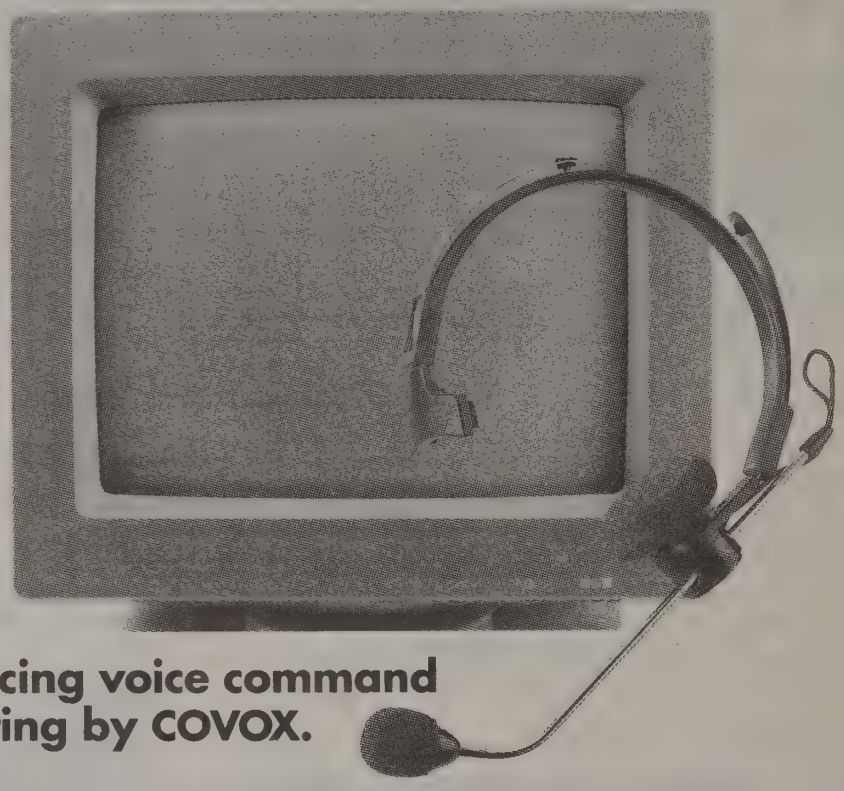

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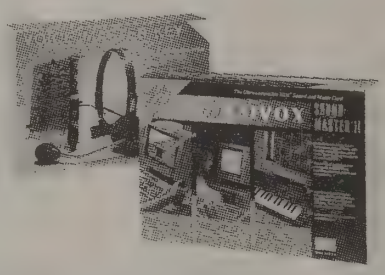

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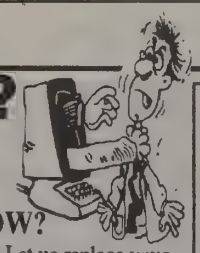

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Running on a PC server in a mixed environment, H.Q. tells you a lot more than just the fact that there's a Mac node out there. H.Q. reports the type of Mac (including PowerBooks), system memory, Color QuickDraw, processor, coprocessor, hard disks, and more.

which are sometimes unreliable.

There's much more to v2.0 than its ability to take an on-demand, or scheduled, software inventory on either workstations or the server. It now detects a machine's CPU speed and bus type. On an MCA or EISA machine, it can even tell you which cards are in which slots. In addition to tracking EMS and XMS, it now tells you which memory manager is in use, and the versions of the DOS Protected Mode Interface (DPMI) or the Virtual Control Program Interface (VCPI) software. It reports NetBIOS versions, and which environments (Windows, DESQview, etc.), if any, are running. It can keep a log-in history for every workstation. And this version also introduces a true Windows viewer for its database.

H.Q. AT WORK

While the forthcoming product has an impressive feature list, the current version already has an equally impressive track record. DePriest illustrated two examples.

When one network manager called to

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report a malfunction of the software, it turned out that what he thought was misreporting of system memory was actually the presence of the Stoned virus. Forty machines had been infected, but the virus was hiding its 2K residence by reporting 640K to the operating systems. H.Q. didn't rely on the system memory report, and disclosed 638K of available base memory. The infection was prevented from spreading to the entire 230-machine network segment.

Another company discovered that fifty machines were missing a second serial card that had supposedly been installed in them.

Without the installation of a tool like H.Q., you may find your documentation gap widening beyond your control. Kuklin says, "The largest benefit of this program is that it allows you to retrieve the current hardware status of your system. You're always doing installs, so most administrators can't tell you the current status of their LAN." (Of course, 2.0 will also allow him much more control over software than he's had up to now.)

Kuklin calls H.Q. a product for the technical manager, a day-to-day problem-solving tool. Administrators of the network's network use it in making upgrade plans, then get DOS versions for the updates. It helps them isolate hardware problems on the system (e.g. by disclosing common hardware for users having an application problem), and to do planning and budgeting. They also use it to create a name table for LANalyzer. The table lets them see a person's name instead of card addresses when looking at a trace file.

Doug Moore, a network support engineer with Kilpatrick & Cody in Atlanta, is using H.Q. to support the installation of a large network. The pilot program, with seventeen workstations served by a 386 running Netware 386, v3.11, will soon be joined by sixty-five nodes in the first stage of implementation. There will be three to four hundred nodes when the topography stabilizes.

Moore agrees that H.Q. makes it easier to keep up with system growth. "It will help me determine what version of DOS each user is running. It helps you keep an inventory of equipment attached to your network," he says. He monitors node addresses, BIOS dates, processors, coprocessors, ports, memory (types and locations), video types, floppies, up to two fixed disks per node (including the space available), and mouse drivers. But his principal use for H.Q. is as a diagnostic: "If they call me and say they can't get their mouse to work, I can tell that they forgot to load their driver. I can bring up a look at their machine and tell what's up."

Magee also sells the Treeview file-management system, and the Automenu DOS shell. It's significant that the majority of a million-plus copies of Automenu have been sold through distribution, even though the same code is available as shareware. Users buy it commercially, rather than download it from bulletin boards, to get the company's support. Not a bad endorsement. ■

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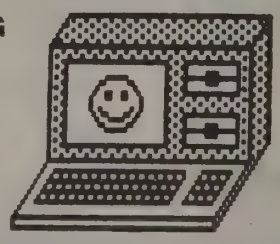

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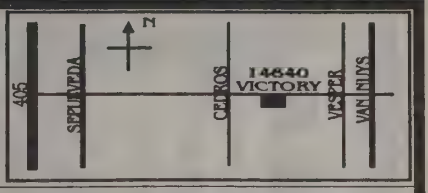

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Enterprise Computing

Workstations Get Down To Business At SunSoft

BY MARY EISENHART

In recent years, Sun Microsystems has been promoting the concept "the network is the computer." For a real-life example, check out SunSoft president Ed Zander's SPARCstation.

Zander, who came to Sun in 1987 from Apollo, is a nineteen-year veteran of the computer industry. In a company with the cultural baggage of being of, by, and for UNIX wizards, Zander professes himself UNIX-illiterate—just like most of the people Sun considers its fastest-growing user base.

Zander comes in to work, types in his password, and up comes his desktop. The information and tools he uses in the course of doing his job appear in nice user-friendly windows—each one of which shows data that may be in a server in Zander's own building, elsewhere in the complex, or somewhere around the world.

"There are servers in this building," he explains. "There are servers all over these campuses. I don't know where anything is; all I know is that I come in in the morning, I hit one key, I enter my password, and this is what comes up."

Say he needs to schedule a meeting with Sun CEO Scott McNealy. McNealy's not in Zander's building. "I can go over the network to Scott's calendar. I can't change things on Scott's calendar, but if I say to my administrator, 'Set me up with Scott,' she can go into his calendar across the network and compare calendars. 'There's an opening at three o'clock; check with his admin and schedule appointments.'"

The world of enterprise-wide computing gets a lot more sophisticated than that, and Sun's making aggressive efforts to broaden its base in that world. Historically strong in technical markets, Sun's also become an entrenched supplier of corporate solutions. While leading PC vendors like Compaq have suffered from declining growth, Sun and other workstation vendors have prospered.

PHOTO: MICHAEL JAY

Last year, Sun made some structural and strategic changes designed to strengthen its position. McNealy announced that Sun Microsystems itself would be split into several autonomous companies, each focusing on a particular aspect of Sun's business. One of the companies was SunSoft, devoted to the development and marketing of Sun's operating system software.

And, in a historic announcement last fall, SunSoft announced its acquisition of leading Intel-based UNIX supplier Interactive (profiled in *MicroTimes* issue #85), and its intention, with the help of Interactive's technology, to port its Solaris operating system to Intel-based environments.

The industry has been inundated with announcements of impending operating systems designed to take advantage of current and future processors—Taligent, NeXTstep, Windows NT, etc. Until the announcement, Sun's Solaris operating system seemed tied exclusively to Sun's RISC-based SPARC processor line, and the prospect of Sun software moving into the vast clone marketplace raised at least as many questions as answers. So we went to visit Zander and ask some of those questions.

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Mac Ici,IIsi	4MB Kit	209.00
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Mac IIci,IIsi	16MBKit	629.00
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WKST & Bravo Premium 286	4MBKit	189.00
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FastramKit	512Upg.	55.00
Premium 386	1MB Kit	59.00
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DP 386/ 20e,20 & 25e,25	1MB BD	139.00
	4MB BD	299.00
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DP-386S/16	1MB BD	119.00
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DP 286N, 386N, & 386SX/20	1MB MD	69.00
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	UPG. Kit 2-8MB	249.00
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P.M.386/20	2MB MD	349.00
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P.M.386/25S	2MB Kit	199.00
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P.M.386/25	2MB MD	349.00
	8MB MD	859.00
	8MB Repl BD	1,199.00
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	4MB Module	209.00
H.P.Laserjet IIISi	1MB Module	69.00
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"Sun is always thought of as a computer company, a workstation company. But in some respects it's software that's sold the hardware, in that you've got to use these things and we have a very powerful UNIX environment."

Why did Sun split into multiple companies, with SunSoft being one of them?

I think it's a sign of the times, companies getting a better handle on their investments, their technologies, and their business focuses. Breaking up what we call the big wad of company into smaller, manageable businesses that reflect the core competency.

It's not unique. IBM's doing it now. DEC's started doing it. All these companies are starting to say, "What is this thing I have as a business? If software's important, let's manage that at a very senior level. Let's get a business focus, a financial focus, a competitive focus, a product focus, on that thing. If it's computers, let's look at computers. If it's service, let's look at service."

I think Scott and the management team were becoming increasingly concerned that we don't fall into what IBM and DEC and Hewlett-Packard got themselves into, which was this big wad of a company where you didn't know why you were doing some of the things you were doing, or how to compete effectively in the '90s.

It's a method, internally, of how to measure ourselves a lot better. Externally, it's a focus on competition and key strategies. You could have cut it ten different ways; this is just the way he and the team decided to cut it at this time.

So what is SunSoft's mission?

Sun is always thought of as a computer company, a workstation company. But in some respects it's software that's sold the hardware, in that you've got to use these things and we have a very powerful UNIX environment.

Our goal is to make sure we continue to build the best technology for the computer company, so that means great software products in the system software area. But also, the goal is to capture as many applications and as much volume as possible on that platform, to finance the investment in technology. That means to port it to other SPARC platforms, and the Intel platform, to try to create a broader market appeal for our system.

Historically you've been really strong in the UNIX world, particularly in technical and scientific areas, and also in the corporate world with high-end database servers. It seems that your current strategy is a lot broader than that.

Well, people hear the word "Intel" and they think of your PCs and home, and your kids. The problem with the word "Intel" is that there's a hundred million PCs out there, and they have a very broad range of usage.

You described our market very well. I think it's more a matter of broadening horizontally than vertically. What I mean by that is, if we were in technical areas before, we're now more in commercial areas that appreciate the technology and want to do client-server computing.

We're not after the DOS/Windows-let's-run-a-Lotus-spreadsheet-on-the-desk market by any means. We're after Fortune companies that want to really downsize off of their mainframes and minicomputers, upsize off of their PCs into client-server 32-bit computing to run their business.

You've got to be really careful—we announce "Intel" and they think we're going to sell it to children.

The question does come up—is the guy sitting there playing games on his XT your target user?

No. Not at all. There are multiple different instruction sets that people buy, just as they buy cars. People buy Chevys or Fords or whatever, but they all run on gasoline. We want to pick the most popular cars—in this case, it's SPARC, which has the volume in the RISC marketplace, and Intel, which has the volume in the CISC marketplace. We want to run our environment on it.

Just as multiple cars operate on the same highways, if you walk into General Motors or an oil company or an insurance company or an airline company or a financial company, there's high-end PCs there, workstations there. They're connected, they're running different parts of the business. So we wanted to apply the same application environment to the client-server model.

There are many different flavors of UNIX. As an operating environment, what advantages does Solaris offer, other than the fact that it runs on Sun hardware?

The best way I can describe it is that it's industrial-strength UNIX. We have ten years and half a million installations. We've pounded that thing, and we think it's the most reliable, most well tested, most quality product around.

There are technical features like multiprocessing capability and security and administration and internationalization and ease of use, but the bottom line is that I think it's the best integrated quality industrial-strength implementation of the UNIX operating system in the marketplace today.

Those who have used SunOS in the past versus other UNIXes say it's like night and day. So we're going to build our success on our knowledge of UNIX and our reputation for building great product.

Clearly you wouldn't be interested in having your software running on Intel platforms if you didn't perceive a market to be there. Who do you perceive that market to be, and how are its needs not being met by, say, SCO?

SCO has traditionally approached what we call the small business marketplace—timesharing, very small businesses that run accounting packages, etc. That may still be a business; it's not necessarily our target focus.

We address large enterprise computing. That's been our business, that's where we're going to continue to stay for a while. In those large enterprises, there are people who have bought a lot of RISC workstations and have used products like Solaris to do their job—to design planes, or to run their financial trading workstations down at Solomon. There are just countless numbers of applications today that are heavy-duty, industrial-strength applications.

As Intel upscales its instruction set for more power, people are building some very demanding 486-based, multiprocessor-based Intel machines—servers and clients—and they need an operating system to run. They can't run DOS and Windows on a 486, it just doesn't do anything. You need multitasking, you need networking, you need multiprocessing.

Actually, the Intel thing was kind of reversed. More people approached us than SunSoft approached them. We had some PC companies, companies like Dell and others, that came to us and said, "Can we get SunOS or Solaris to run on either our existing or our

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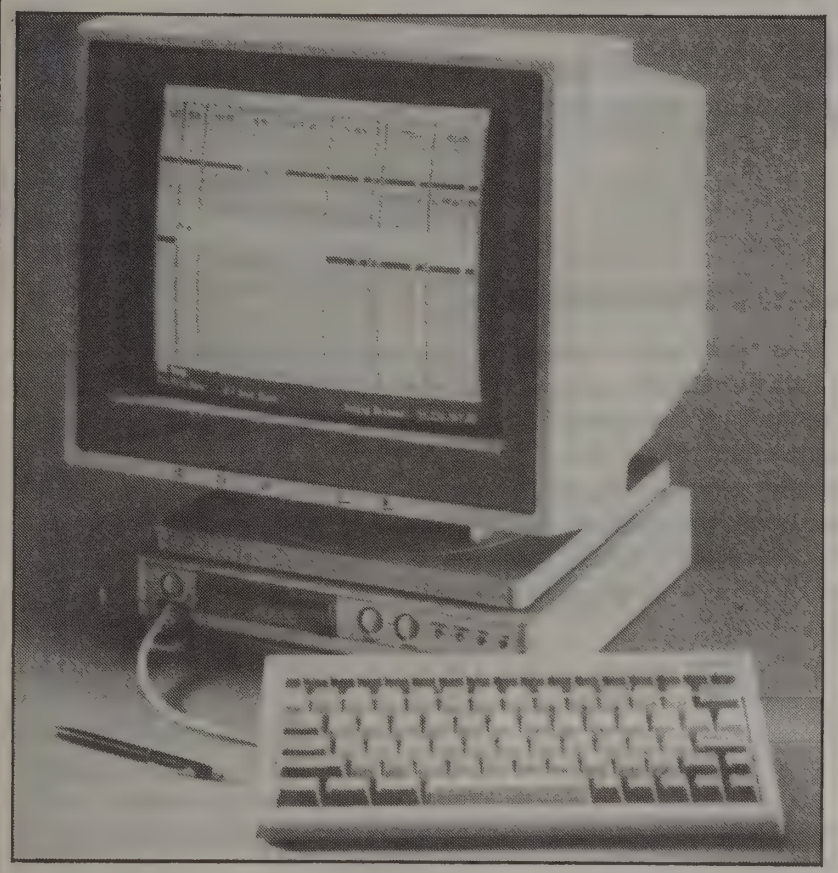

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"We had end-users, large companies that were buying RISC workstations and servers that had high-powered Intel machines, and said, 'Gee, it would be nice to run the same platform across Intel and SPARC in a client-server operation.'"

forthcoming hardware?"

And then we had end-users, large companies that were buying RISC workstations and servers that had high-powered Intel machines, and said, "Gee, it would be nice to run the same platform across Intel and SPARC in a client-server operation."

It's the higher end of the market. If you believe Intel, they're shipping two million units of 486s a year. There's people building real live product on 486s and MPs, and they just don't have the gasoline to run the thing. DOS/Windows is just underpowered.

It's like putting a Porsche engine in a Volkswagen. You just don't have the right match there of technology base. You can go with OS/2, which is IBM. You can wait for Windows NT. Or you can get a UNIX product, which is what a lot of people want today. That's what I think you're seeing now—we started it, and now everybody's porting UNIX. There's the NeXTstep announcements, there's the AIX announcements, Taligent... Everybody wants to provide a robust, next-generation system software environment to run on these new forthcoming higher-end, industrial-strength, Intel-based platforms.

The problem with the world—the consultants, the press—is that they haven't been able to segment the Intel marketplace. There's still this thing called PCs. The analysts still think of the word "PC." That's five thousand bucks on my desk [a SPARCstation]—what's the difference between that and if I go down to Fry's Electronics and pay five or six or seven thousand dollars for a 486 machine?

It's network-based client-server computing, and whether it's Intel plugged in there, or SPARC plugged in there, or Mips plugged in there, or HP plugged in there, or IBM Powerchip plugged in there is irrelevant, as long as the relevant volume's associated with who's buying what. We just want to provide a great environment for people to run applications.

Historically Sun's been much stronger in some applications than others—wonderful technical and scientific stuff, and very powerful databases. But there's no parallel to a PC user's ability to choose among twenty packages that perform the same task. So you get Bill Gates up there saying there aren't any applications for UNIX.

That's not our business. You don't buy UNIX to run spreadsheets or word processors. I wouldn't—I'd go out and buy a 286. Five hundred dollars and I could have a word processor.

You buy these things [workstations] on your desk when you want to run your business. If you're a design engineer at Ford, you want to design planes. If you're a financial trader at Solomon Brothers, you want to do financial trading. If you're in an insurance company, you're doing actuarial analysis or something like that. You do your job at your desk. Managers are doing their jobs at their desk.

Now I use productivity tools. I need a calendar. I need a mail system. I need a spreadsheet for my budget. I need a word processor.

The strategy has been twofold. One is, we have encouraged the major guys to port. You don't get anything by porting WordPerfect, dBASE, Lotus, which are 1983–85 products. They don't do anything more on UNIX than they did on PC. They may run faster. They may run in a window in multitasking. We just did them so people could have the major productivity tools to run native. So you can get dBASE, Lotus, WordPerfect, Frame, Interleaf, Aldus, and a whole host of other PC apps. You can run them. But our goal is not to encourage the twenty thousand single-tasking, limited productivity apps to go port.

We also have on Solaris what we call a DOS and Windows emulation mode, so you can bring up DOS/Windows or DOS in a window, and you can run those twenty thousand applications. Solaris on Intel is the same product as Solaris on SPARC, but in each of those environments you'll have a Windows environment where you can just double-click on an icon and up will pop Windows.

We will never have as many applications as in the PC space. I wouldn't ever give my kids Solaris to go run a game.

The strategy is very simple—to go look for client-server applications. We're more interested, to be honest with you, in Lotus Notes than we are in the Lotus 1983 spreadsheet. Because Notes takes advantage of the networking, client-server computing. Where Notes is being sold today is in Fortune accounts doing client-server workgroup computing. That is the strength of what Solaris sells.

The way you come to PC productivity is *a)* you get the native guys to port, and *b)* you get the PC and DOS/Windows emulation capability under UNIX and bring across those apps.

The real problem with the market is that everybody's trying to homogenize the market so there's only one solution for everything. There's never one of anything. We have a philosophy here at Sun that says there's never one answer.

There's not one instruction set, there's not one bus, and there won't be one OS. Some people buy Lexuses, some people buy Chevrolets; some people rent from Hertz, some people rent from Avis; some people go to McDonald's, some people go to Burger King. Depending on what you need to do your job, Solaris will fit a class of customers. A class of customers that's more enterprise-wide, industrial-strength Fortune accounts that are really tired of their VAX machines, tired of their mainframe machines. They're downsizing into a workstation client-server model.

DOS and Windows on low-end PCs will continue to flourish, will continue to have tremendous demand for people that really want to run their productivity applications, small local area networks of users, small businesses that need publishing, for example.

Or in large accounts, like here. We have some financial people that have a Lotus spreadsheet and use Windows in a dedicated office by themselves. It's heterogeneous more than homogeneous.

People always try to say there's only going to be one answer, and the answer is in Redmond, Washington. And it isn't. I do not deny that it's incredible volume that [Microsoft]'s attaining, but I just point out to the press all the time that there are a lot of other companies that are doing quite well. Some of the most successful recent stock offerings—Frame, Synopsys—are all UNIX-based companies.

Sun's doing very well. Hewlett-Packard is doing well. Silicon Graphics is doing well. Sybase's public offering went well. Oracle's doing very well, much of it attributed to UNIX. Informix is doing great, and a lot of their business is in UNIX. So there are com-

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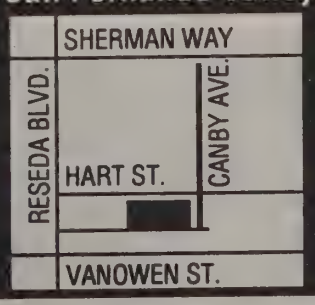

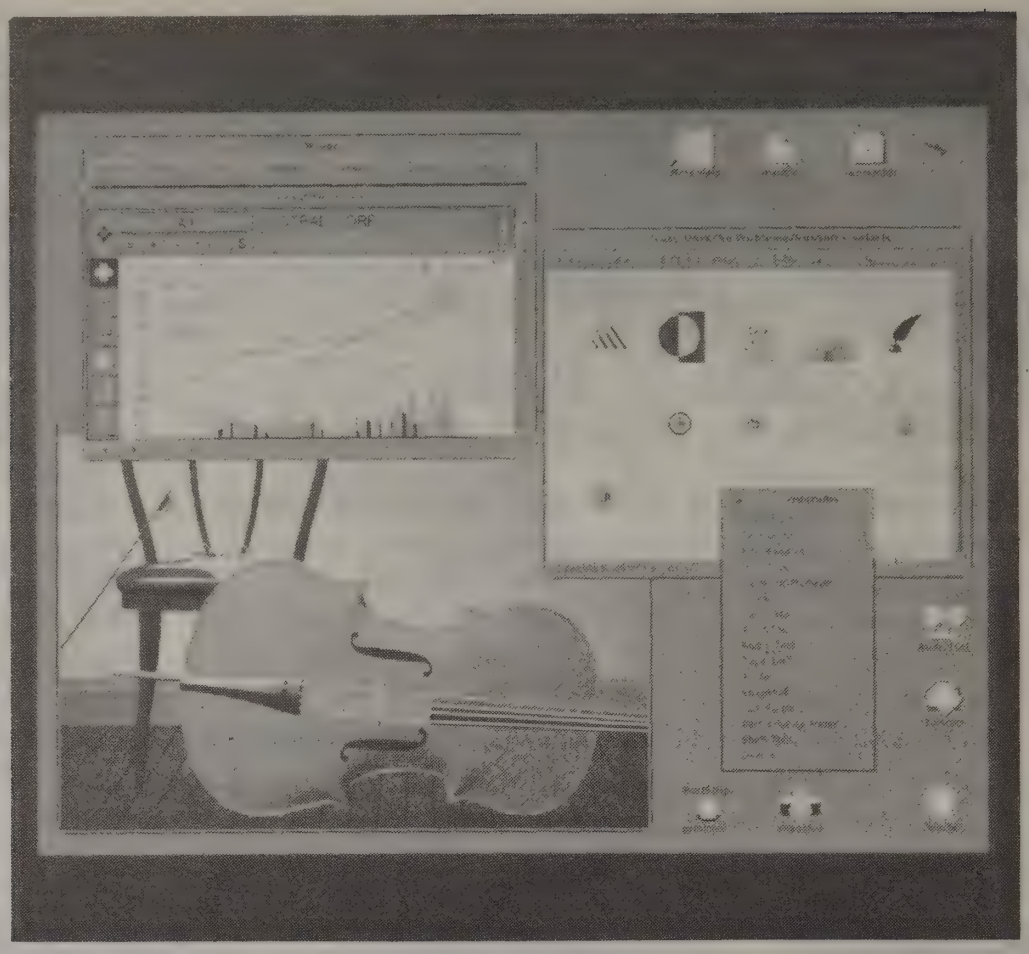

Beyond the command-line interface—the look and feel of Sun's UNIX of today

panies that appreciate client-server UNIX-based workgroup computing solutions, mostly in large companies.

Also there are a lot of PC companies that are doing extremely well. Microsoft is doing extremely well. Some of the clone companies are doing very well. Apple's beginning to do much better. There are different classes of computing solutions that we go after. We're just trying to target what we think is a big niche in Fortune enterprise-wide computing.

"Enterprise-wide computing" and "workgroup computing" and "client-server architecture" are major buzzwords, and when you try to pin people down as to what they mean in specific contexts, you get a lot more buzzwords sometimes. Obviously you're coming from a context of solving real problems for real clients; what do these words mean in the world you're operating in?

I guess you've got to look at the '60s, '70s, '80s, and '90s. I don't want to go through a history course...

"First there was the Altair..."

No, before that there was the IBM mainframe. Remember, you gave a punched deck to an IBM mainframe, and you didn't see it again; two days later you came back and got your answer. That was the computing model in the '60s, the batch.

And then DEC got brilliant in the late '60s, and figured out "Gosh, if we could build a smaller machine and give access to users, through dumb terminals, to a departmental machine, we could offload that mainframe and get better access and better sharing of information."

That was timesharing and the birth of the minicomputer days in the '70s. Instead of a mainframe sitting somewhere that I hand a deck to, I now had in this building right here a big machine. I had a dumb terminal at my desk; I accessed it, and I'd be able to communicate with you and other people, but in a very limited fashion. Because it was one CPU, multiple dumb users. That was timesharing, and the '70s were the boom days for that, because it was "Wow! I can now get computing more localized for my needs."

Two things happened in the late '70s. One is that Steve Jobs and other people said, "Gee, if I could give every individual his own computer cheap, I could make him more productive, or creative, or whatever." But he basically didn't pay attention to the sharing problem, or the corporate problem. He wanted you to take one home and be more productive.

At the same time, companies like Apollo and Sun got going and said, "Gee, timesharing's nice, but I want to give everybody their own computer and maintain that corporate-wide, network-wide sharing." And that's workstations. The workstation industry grew up in the early '80s, and paralleled the PC industry. Both of them really took off in that decade.

What we're doing in the '90s is kind of refining those two parallels of the '80s. Client-server means that you take your databases, your information, off of your big machine, and put them on what you call servers. Black boxes. Small servers in one building, big servers in other buildings, departmental servers in other buildings. Geographically dispersed across continents. You give everybody his or her own computer, effectively, but you network them. That's the last key word, the networking.

So I'm sitting here today, for example. There's twelve thousand people at Sun. I can access any of those employees anywhere in the world via mail, via Calendar Manager. I can send information and documents across the network. I can basically access databases anywhere in the world. I don't even know where my OS is. I don't know where any of my data is.

It's giving me corporate-wide resources so I can do my job better. To maintain that timesharing, yet give me the power of a multitasking workstation.

So client-server is—I'm a client, you're a client, she's a client. And somewhere there's the power of the databases, the communications, the technology that allows us all to operate in a twelve or twenty or fifty thousand-person company.

The PC industry, with Novell networks, started to do what you call local area networks. Let's say the four of us were in this little area here; we may have a little PC server with a Novell network, and we just communicate among ourselves, right? The way we've approached it in the workstation world is with wide area networks, which means we take it a step further. Sun Microsystems itself is probably the largest implementation of client-server computing in the world—probably twenty-four thousand machines, and probably two to three thousand of those are servers. They're connected from about eighty offices worldwide.

You can do, not just mail, a lot of things. I can take a Lotus spreadsheet and merge it with a Frame document across the world. Sun runs its business on client-server computing, and that's where Fortune 500 companies are going.

"Enterprise-wide" to me is when you start to solve real live complex problems of enterprises. As opposed to local area issues, where you might take a room of thirty people that work in one department, say accounts payable, and they have a little database and a little Intel server there, and they run a little local area network among themselves and they do their job.

So they're converging. What's happening is the Intel world—Windows, DOS, Novell, and those 486s and Windows NT—is starting to move into the enterprise world. We have scaled down the technology in cost—we have taken the technical orientation, the very high-priced workstations, very high-priced client-server, and brought the price of that down. And it's becoming very confusing. It's very merged.

People don't understand this, but if you talked to our other side, the hardware company, probably seven out of every ten deals they get are commercial. The real growth on the computer company side is commercial

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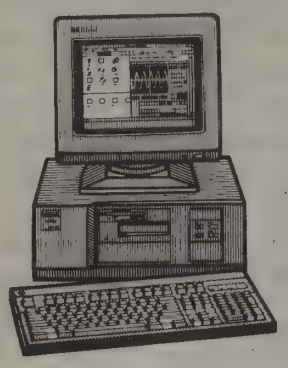

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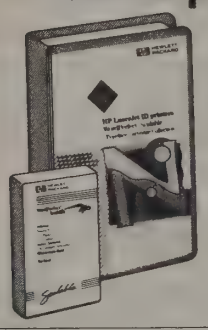

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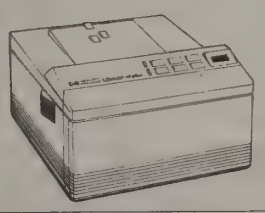

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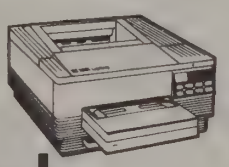

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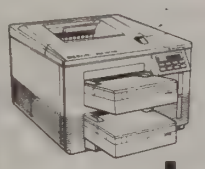

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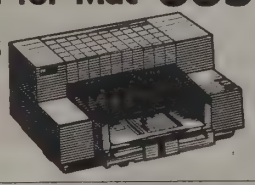

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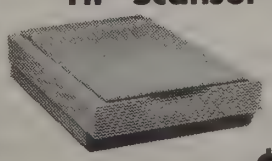

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business. As we've lowered the pricing on the workstations, lowered the pricing on the networking, lowered the price of the servers, they're starting to implement client-server on the commercial side.

What is your sense of how many applications are being written in-house and how many are bought off the shelf?

Again, in Fortune companies, I believe it's 10-1, or 50-1, or 20-1 more internal software development than external. People think that the external ISVs account for the applications software in this industry, but if you walk into a GM or a Ford or a Solomon or a Citibank, there are tons of internal software developers that write applications and write their code. We sell a lot to the internal software developers; they need the kind of environment we're talking about.

We did an interview with Interactive last summer, shortly before Sun acquired them. At the time, they were placing a lot of emphasis on shrink-wrapped UNIX. Shrink-wrapped UNIX is never going to mean the same thing as shrink-wrapped PC...

That's right.

But could you clarify why that is so, and what shrink-wrapped UNIX does mean that's useful?

In the UNIX world, we'd all love to get to a shrink-wrapped concept. You see the beauty of what Windows does—you go down to the store, and you buy Windows, and it runs on 50 million PCs. You buy your applications, and they generally run on any one of those PCs, because there's a very defined strict set of standards that Microsoft employs for application developers.

One of the issues in the '80s and up till recently has been that UNIX has a lot of variants to it, so my UNIX was not necessarily the same as your UNIX. So a lot of application developers writing to UNIX would have to write a little bit different to every different variant.

It wasn't just a recompile, it was more than that?

Well, most of it was recompiling. But you don't recompile on Windows and DOS. You buy Lotus for Windows, and you buy Lotus for DOS. You don't recompile for Compaq versus Dell.

What Interactive was trying to do, and we're doing with Solaris—[*shows box*] this is shrink-wrapped. What we've done is taken our environment and put it on a CD. This runs on all SPARC machines, not just Sun. We started to shrink-wrap for the SPARC market. We have a specification—in the Microsoft marketplace there's this ROM BIOS standard. We have something called SPARC Compliance Definition 1.0. It defines a set of software interfaces—Open Windows, certain toolkits, certain APIs. If you conform to those APIs, which most of those four thousand applications do, then you will run across other SPARC compatibles, other SPARC clones.

That is the first concept. You can now buy this thing, and it says Solaris for SPARC. You can probably take this and load it into your CompuAdd or your Toshiba SPARC machine, and you can take your application—Lotus 1-2-3, Frame, Interleaf—and run it across those machines. So we started to tell the developers, "You can now write to SPARC Solaris, and you can get more volume. You can not only get the volume of Sun computers, but you can get the volume of these other guys."

We're doing the same for Intel. For Intel, because of the different instruction set, it is a recompile. But now a developer like Frame says, "I'm writing to this environment, so instead of getting 250,000 units a year, which is what the SPARC volume is, I can now get whatever the Intel volume is." Maybe it's another 250,000. Or maybe it's more.

So we are getting shrink-wrapped. Will it appear at Fry's Electronics in the next year? Probably not, because the selling of UNIX is another issue. This is a very complex, sophisticated operating system.

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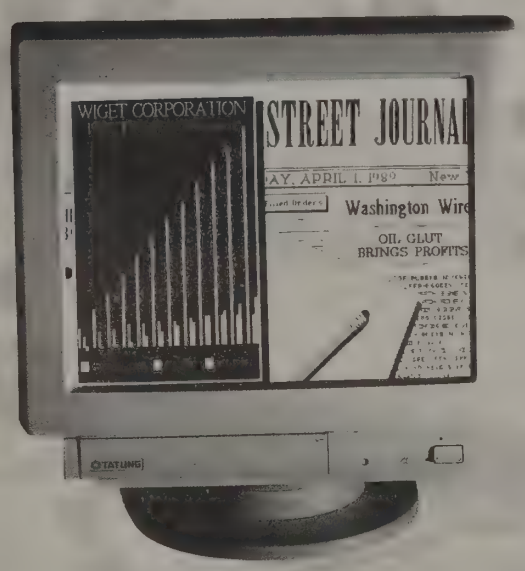

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Right. And by the way, I think the same thing is going to happen with NT or Taligent or others. These are not made to be "pick it off the shelf, throw UNIX in, and you can administer networking and other good stuff."

On the other hand, we are making it a lot simpler. I come in in the morning, and I'm not UNIX-literate. I press one key, I type my password, up pops a very user-friendly environment. I check my mail, I do my calendar. I can pop a spreadsheet. I never see UNIX. In the course of my day I never see UNIX.

You don't sit down and do your memos in vi just for fun?

No. I *can*—I can pop a shell onto the screen...

So what we've done is, we've started to paint a veneer on top of UNIX. We also have worked a lot on administration, and system and network administration, to make that user-friendly. Installation and software development are also ways that we're trying to make it easier.

So it's not really shrink-wrapped UNIX, it's shrink-wrapped Solaris. I don't think you're going to get one UNIX. That's okay. What you're going to get is—we have four thousand applications that run on Solaris SPARC. When we get Solaris Intel, those four thousand applications will be recompiled to run on Solaris Intel. And then hopefully we'll get more applications, plus we'll pick up the Interactive applications and some of the SCO applications, because they're Intel binary-based.

The real goal is—if you're a large end-user, you basically can take this CD, and you'll have a SPARC version and an Intel version. And you'll just plug it in, and then you can take your application portfolio and run it across that same environment. So the user training and the user relearning—it's like the same dashboard, it's the same environment, whether it's Intel or SPARC. From the ISV's point of view, the real win is he gets to write now for double the volume, so he basically shares his costs.

That's where I think "shrink-wrapped UNIX" will be in the next two years. Maybe if we can figure out the channels, someday when you walk into a very sophisticated dealer or VAR you will see something on the shelf like this, and you will see applications that are shrink-wrapped. There is shrink-wrapped UNIX [*getting box off shelf*]—this is dBASE, this is Lotus 1-2-3 for SPARC Solaris.

What it really means is I can take this thing—see this SPARCware logo?—this thing says it's SCD compatible. You should be able to take this thing and run it in any SPARC machine that has that label on it—SCD 1.0. It's closer to the model we've all grown up with in the PC space, where I can take dBASE and run it on Dell, Compaq, IBM, with Windows. Now I can take this package, with this CD, and run it on any SPARC machine.

The goal is also for the vendors to release something that says "Solarisware for Intel." Take this CD for Intel, with this product recompiled for the Intel instruction set, and run it on any Intel machine, or any Intel machies we specify that are Solaris-compatible. That's the goal we're working towards.

When are you going to ship?

The product we announced in October was Solaris 2.0. This [box] is 1.0. Version 2.0 for SPARC features a full UNIX System V.4 implementation; it's a very robust system with symmetric multiprocessing. It's the completion of the V.4 Berkeley merge—it features multiprocessing, a lot of commercial extensions, disk mirroring, a lot of security administration capability. That will be available in SPARC in the June-July timeframe this year. We hope to be demonstrating the Intel product by then, and we should be shipping that in the second half of the year, probably in the fall.

We're getting quite excited. We're getting a lot of interest. We're offering a robust alternative for users in large companies that want to take advantage of a network-based environment. It's not a Windows alternative; it's an alternative for people that have been doing timesharing computing for some time now, that are offloading the mainframes, that are downsizing in large companies, or upsizing their PCs. A lot of people are frustrated by the performance of PCs—486s will help, and then they need the OS to run the 486s. ■

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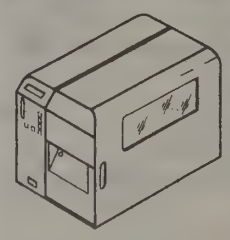

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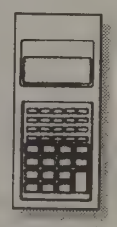

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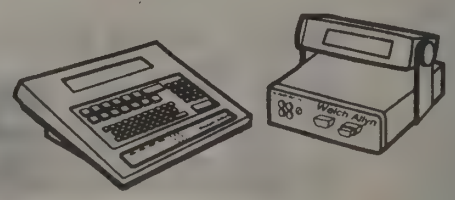

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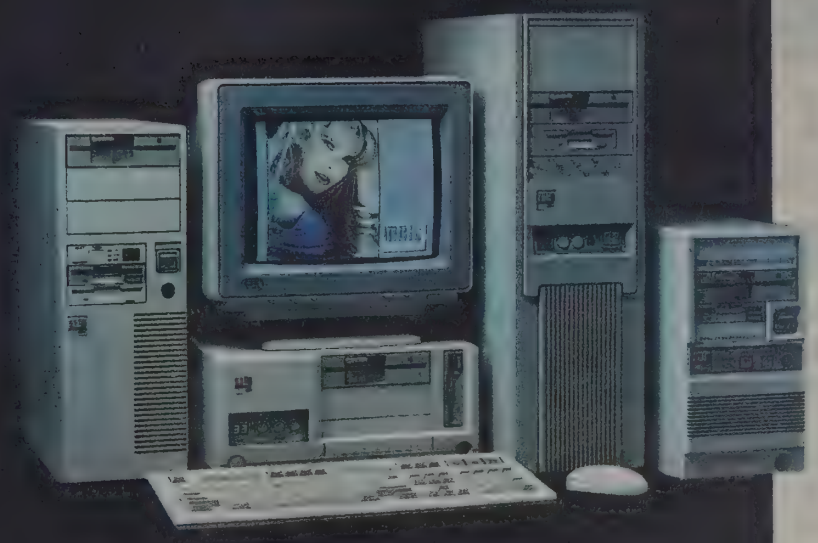

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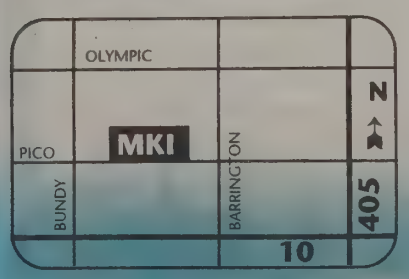

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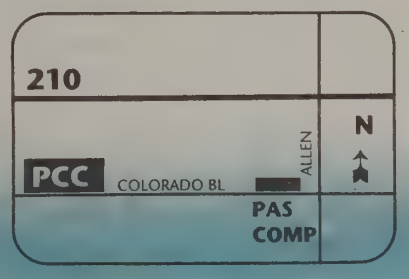

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Your First Computer

An Introduction To Personal Computer Telecommunications

BY MIKE MARKOWITZ

You couldn't live without a telephone, and your computer feels the same way. Since a computer can't just pick up a phone and start dialing, you will have to help it out by learning a little about computer telecommunications to get connected to the Wider World Out There.

There are two parts to computer telecommunications—the How and the Why.

How? includes the technical issues—hardware and software. Why? includes the more interesting personal issues—what can all this stuff do for me?

HOW?

Computer telecommunications evolved back in the days when there was only one Phone Company that made all the rules, and only one Computer Company (more or less) with no interest in making anything easy to use.

There is a major mismatch between computer technology and phone technology. Computers rely on digital electronic signals which are very fast, sharp, and precise. Telephones rely on analog audio signals which are relatively crude, fuzzy, and slow. To bridge this gap, the modem was invented. A modem turns the computer's stream of digital bits into squeaks and beeps a phone line can carry. It can also turn an incoming stream of squeaks and beeps back into the digital bits a computer can understand.

KINDS OF MODEMS

Personal computer modems are usually advertised as "Hayes-compatible," after Mr. D.C. Hayes of Atlanta, Georgia, who, back in the 1970s, invented the standard set of commands that control what a modem does. Hayes is still the premium brand name for modems. Some cheap imports may fail to be truly Hayes-compatible, leading to endless software problems.

Internal modems are circuit boards that slide into a slot inside a computer, leaving a standard modular connector so you can run a cable to the nearest phone jack. Usually there is a second connector so you can plug the phone back into the modem, after disconnecting it from the wall. Internal modems are particularly handy with laptop portable computers, but since laptop portables often have non-standard slot designs, each brand of laptop may need its own specially designed modem.

External modems are flat boxes (designed to sit underneath a telephone). The modem is connected by a cable to the serial port of the computer. In the Macintosh world, this port is identified with a little telephone symbol, and it takes a round 8-pin connector. In the PC world this port is usually named COM1: or COM2: and has a 9-pin or 25-pin D-shaped connector (depending on the vintage of the computer).

You can pay as little as $79 for a generic, mail-order modem, or as much as $700 for a top-of-the-line high-speed modem with advanced error correction. An increasingly popular feature on mid-priced modems is the capability to send and receive fax transmissions directly from your computer.

A file transfer protocol is a set of rules that ensure that one computer receives exactly what another computer sent. If you're sending a computer program, one garbled character out of five hundred thousand may be enough to make the program crash, or hang up, or launch missiles against Sverdlovsk instead of Vladivostok.

WHAT MODEMS DO

Noise is the great enemy of information. The human brain happens to be incredibly good at filtering out noise from audio information, so despite the 19th-century technology of the telephone handset (a really poor microphone and a feeble speaker) we can have intelligible long-distance conversations.

The modem has evolved very rapidly in a few years, from a big expensive box of electronics to a few low-cost chips, but the human brain has a two-billion year head start, and is a few million times more sophisticated. So the modem, to have any chance of separating information from noise, needs to depend on some very specific rules that define the incoming and outgoing streams of beeps. Most of the confusion in computer telecommunication derives from the way users have to make software tell a modem what rules to use for marking and interpreting beeps.

Baud rate is one part of the rules. "Baud" is an ugly contraction of "bits–audio." The more beeps you try to squeeze into one second, the greater the chance that random noise on the line will garble part of the mes-

Continued on page 79

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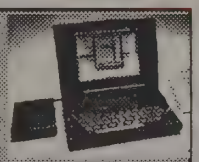

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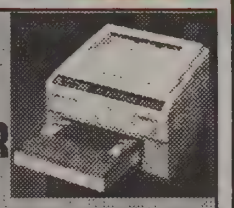

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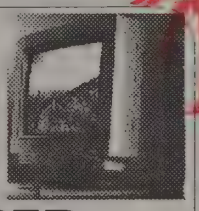

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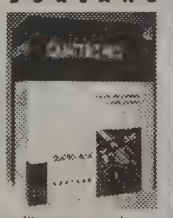

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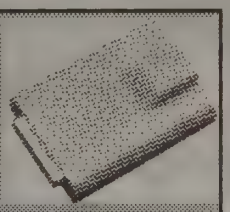

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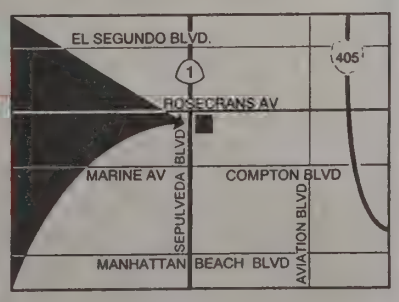

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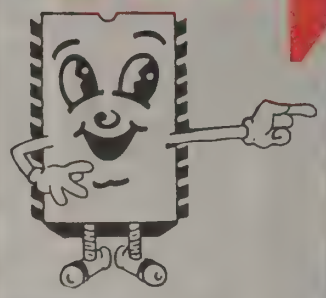

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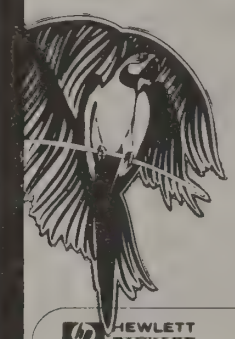
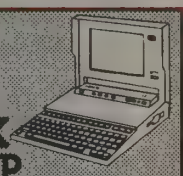


IBM Model L40SX 20MHz 386SX 60MB LAPTOP



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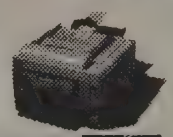

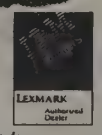

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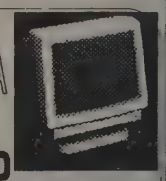

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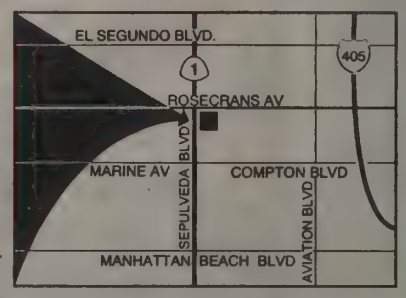

Continued from page 74

sage, and the more sophisticated a modem has to be to ensure the integrity of the data. The earliest modems for personal computers worked at 300 baud, which translates to a data rate slower than most people type. Today 1200 baud is considered slow, 2400 is more or less standard, and top-of-the-line modems can deliver a reliable 9600 baud.

Another important set of rules define how many bits it takes to represent one character. Seven data bits give you 128 possible characters, eight data bits give you 256 possible characters, and both systems are in common use. "Stop bits" are used to mark the end of a transmitted character; the common options are 1 or 2. "Parity" is a method of checking that data has not been garbled during transmission. The software computes an extra "parity" bit based on the binary number that represents each character. The common options are Odd, Even, or None. A simple code is used to describe the settings used by a particular system; for example, the most common setting, 8-N-1, means "eight data bits, no parity bit, one stop bit."

There are many other variables, such as "handshaking," which involves the way computers tell each other whose turn it is to send data, but this is rarely a problem for beginners.

ABOUT COMMUNICATIONS SOFTWARE

A modem is useless without software that knows how to control it—how to dial a number, how to display incoming data, and how to transmit what you type on your keyboard. Modems are often sold with a no-frills, generic communications program, usually with atrocious documentation and no help for the beginner. Some integrated software packages, like Microsoft Works (MS-DOS or Mac versions) include simple communications programs (with lots of help for beginners).

In the MS-DOS world, the most popular communications programs include:

Crosstalk Mk. 4: A heavyweight program with all the bells and whistles any Power User could desire.

Smartcom Exec 2.1: A basic, easy-to-use program from the folks who practically invented the modem.

Procomm Plus 2.01: Lots of features, including a well-designed mouse control option.

In the Macintosh world, popular telecommunications programs include:

Microphone II, v4: The most powerful and comprehensive Mac communications package.

Smartcom II v3.3: Very friendly and easy to use, even for beginners.

White Knight v11.12: The commercial successor to Red Ryder, a classic shareware program that established the standard for Mac telecommunications. Very flexible, but can be hard to master.

For any communications package, two of the most important features are a good set of terminal emulations, and a wide range of file transfer protocols.

A "terminal emulation" lets your computer fool a remote computer into believing that you are really a particular brand of "dumb" terminal. Before personal computers existed, terminals were the only way that people could communicate with computers. The very simplest kind of terminal was the Teletype, or TTY. Some of the nicest terminals were made by Digital Equipment Corporation (DEC) with names like VT52 and VT100. Classic IBM mainframe terminals have names like 3170 and 3278. Terminal emulations define how the screen behaves when you are communicating with a remote computer, and which keys perform special functions.

A file transfer protocol is a set of rules that ensure that one computer receives exactly what another computer sent. Computer people worry a lot about exactness, because if you're sending a computer program, one garbled character out of five hundred thousand may be enough to make the program crash, or hang up, or launch missiles against Sverdlovsk instead of Vladivostok. A file transfer protocol defines how big each chunk of data will be, and what kind of error detection and correction logic will be used. In effect, one computer tells another:

"Yo!, I'm going to send you a file named DEBBIE.GIF that's 578,342 bytes (characters) long. I'm going to send it in chunks of 128 characters each, and after each chunk I'll send you a check-sum, which you have to echo back to me. If it doesn't match, I'll let you know and keep resending that chunk until it does, OK? After the last chunk, I'll send you a special End of File marker, and then we'll both drop out of file transfer mode."

As computers have gotten faster, new file transfer protocols have been developed to transmit data in bigger chunks, with more sophisticated error correction methods. The original protocol was named XMODEM; others in common use include YMODEM, ZMODEM, Kermit, and (in the Mac universe only) MacBinary II.

THE WHY? OF TELECOMMUNICATION

You've got your computer, your modem, and your software all connected and working together. Now what can you do with them?

You can join one of the big, national online services.

You can start calling local bulletin boards. You can send and receive data with friends or associates.

The major online services include CompuServe, GEnie, Prodigy, and America Online (Brock Meeks reviewed some of these services in a recent issue of *MicroTimes*). Generally, you pay a monthly fee, plus charges for "connect time." You dial into a local phone number that connects to a big central computer. You get access to a wide range of special interest groups and vast libraries of public domain software you can "download." Most services provide online catalog shopping, airline reservations, wire service news, and electronic mail (at least to other subscribers).

There are also specialized services like Dow Jones News/Retrieval, Dialog, and MCI Mail.

A bulletin board consists of a computer running special software that allows remote users to call in and "log-on" in order to chat, leave messages, or download files. There are bulletin boards for every imaginable (and unimaginable) special interest. Many high-tech companies operate their own bulletin boards so that users can call in technical support questions. Boards range from tiny operations run by part-time hobbyists, to businesses with full-time employees, running on networks of high-powered computers with dozens of incoming phone lines. The User Group section in the back pages of *MicroTimes* has a listing of bulletin boards organized by area code. Bulletin boards have evolved their own language and etiquette, and beginners often benefit from a more experienced hand to show them the ropes.

If you can get an account on your company or university mainframe, you may be able to dial into it from your home computer, opening up all sorts of possibilities for research, telecommuting, and electronic mail. For example, many university libraries provide a telephone line for computer access to their catalogs. Most academic systems, and many government and corporate ones, are connected to the Internet, a vast online universe of resources, people, and connections that deserves a whole article by itself.

One of the greatest personal benefits of computer telecommunications is saving time. As a free-lance writer, I used to mail manuscripts on disk to my editors, relying on the tender mercies of the Post Office (known in the online community as Snail Mail). Now I can usually find a way to send drafts of articles instantaneously by electronic mail (assuming that editors check their email); and, at least with Macintosh file formats, I can even send graphics. In effect, I can meet the same deadline, but I gain another two or three days to work on a project. Depending on the size of the file, it may even be cheaper than mailing a disk. ■

RESOURCES:

Crosstalk Mk. 4, $249
Digital Communications Associates
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Smartcom Exec 2.1, $129
Smartcom II v3.3, $149
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CPUs And You

Choosing The Processor For Your Next PC

BY PAUL HOFFMAN

A few years ago, the decisions you needed to make before buying a PC were much easier. After deciding how much hard disk space you needed and what kind of monitor you wanted, you had only two choices for the CPU: the Intel 80286 and the Intel 80386. There were a few speeds in each CPU type, but that was an easy choice: pick the fastest one you could afford.

Today, there are far more choices, and that number will probably increase significantly again this year. Intel is not the only supplier of chips now: Advanced Micro Devices has quickly become a major source of both 286 and 386 CPUs. Chips and Technologies (commonly referred to as "C&T") has also begun shipping 386 CPUs that have some significant advantages over Intel's and AMD's. Later this year, you will probably be seeing 386s from other companies, including Cyrix, VM Technologies, and NexGen. Even IBM is getting into the picture, shipping its own modification of the Intel 80386SX called the 386SLC.

WHY YOU HAVE TOO MANY CHOICES

Until last year, you had no choice except to buy an Intel product if you wanted a PC. Intel owned the entire market; it always had. When IBM first introduced the PC in 1981, it used an Intel CPU. Many people at the time questioned the choice, since the most popular CPU was made by Zilog, and the Intel CPUs (the 8086 and 8088) weren't compatible with the Z80. Obviously, that didn't turn out to be much of a problem.

The next major successor to the 8086/8088 was the 80286. The 80286 was both faster and had many more features than the earlier models. The 8086 and 8088 could run all of the same programs identically; the only difference was how they addressed memory on the bus. The 80286, on the other hand, could use instructions that weren't available on the earlier processors. These extra instructions made the 80286 more useful for advanced operating systems. Thus, the new CPU had both a speed advantage and a power advantage. Of course, Intel priced it so high that only "power users" initially bought PCs with the 80286.

Intel slowly dropped the price of the 80286, making systems using it more accessible to standard users. However, it also dropped the price of the 8086/8088, making the price of those systems drop as well. The result was that the number of non-80286 users kept increasing.

When Intel first released the 80386 (now called the 386DX), it proclaimed that this was the end of the 8086/8088. That turned out to be dead wrong. The 386DX is faster than the 80286 series and has many more powerful features. These features make it much easier to write "real" operating systems that are not as limited as current ones with respect to memory. They also allow programmers more freedom when they create software just for the 386DX.

The most popular programs for the PC, WordPerfect and Lotus 1-2-3, both run just fine (if slowly) on an 80286. Since these systems cost many hundreds of dollars less than similar 80386SX systems, and given the slow economy, many people are choosing to buy old technology that will possibly be "obsolete" in a few years, because that's all they can afford.

However, the price of the 80286 had not fallen enough for PC manufacturers to forsake the 8086/8088 for the 80286, so they kept buying the chips and selling the systems. Intel's introduction of the 386SX, a lower-cost and somewhat emasculated version of the 386DX, was supposed to put both the 8086/8088 and the 80286 out to pasture.

As you can see from reading the ads in *MicroTimes*, even that wasn't successful at halting 80286 PC sales. There are still plenty of dealers who sell systems based on these processors. Why? Clearly, because the customers demand them. The most popular programs for the PC, WordPerfect and Lotus 1-2-3, both run just fine (if slowly) on an 80286. Since these systems cost many hundreds of dollars less than similar 80386SX systems, and given the slow economy, many people are choosing to buy old technology that will possibly be "obsolete" in a few years because that's all they can afford.

TODAY'S MARKET

Last year's introduction of the Intel 80486 and the AMD line of 386 clones didn't help matters for the buyer. Ignoring the 80286 for a moment, a buyer only interested in CPU has more than nineteen choices from Intel and AMD alone:

- Intel 386SX at 16 and 20MHz
- AMD 386SX at 20, 25, and 33MHz
- Intel 386DX at 25 and 33MHz
- AMD 386DX at 25, 33, and 40MHz
- Intel 386SL at 20 and 25MHz
- AMD 386SL at 40MHz
- Intel 486SX at 16, 20, and 25MHz
- Intel 486DX at 25, 33, and 50MHz

The basic rundown on the last two letters is a bit arcane, but what isn't in the computer world? The "base" to consider is the 386DX. The 386SX is a stripped-down version, running slower and exchanging data with other hardware more slowly than the 386DX; however, a 386SX can run all of the same software as a 386DX. The 386SL series is for low-power,

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small-size PCs, primarily portables. The 486DX is both faster and has more power than the 386DX, particularly for math. As you can probably guess, the 486SX is a less powerful 486DX.

AMD's versions of the CPUs are faster than Intel's, and cost a bit less. For example, the cost of the AMD 40MHz 386DX is less than Intel's 33MHz 386DX, and it runs much faster. By all reports, the AMD processors run just like Intel's, but are faster. In fact, most recent tests show that the AMD 40MHz 386DX runs programs as fast or faster than the Intel 486SX CPUs—and costs much less. This has made AMD chips attractive to many PC dealers who base their advertising on speed and don't really care about the Intel name brand.

IF YOU BLINK, IT WILL CHANGE

AMD is clearly Intel's biggest threat in the CPU market. When AMD announced its 386 CPUs last year, the press was fairly skeptical about compatibility and value. Those doubts have been almost completely erased, because no one has found any compatibility problems with any of AMD's chips, and dozens of small PC manufacturers have adopted them. Some larger PC manufacturers are buying select chips for specific applications as well. This year, there will be even more challenges.

Earlier this year, AMD confirmed that it intends to ship its own 486 CPUs this summer. These include chips running at 25, 33, and 50MHz, identical to Intel's. Instead of offering higher speeds, AMD will offer the same speeds but slightly lower prices. In addition, AMD hinted that the chips may have better performance at the same speed due to new features they are adding. These might include a larger on-chip cache that could significantly improve performance on compute-bound processes like spreadsheet recalculation. Again, this improvement could help lure away PC dealers who are not tied to Intel.

Clearly, Intel is not standing still this year. Two announcements are widely expected this year: the "clock doubler" 486 and the first 586. Both of these chips will appear on the high end of the power scale, so they are of interest only to a few PC buyers. However, Intel traditionally drops the prices of its other similarly powered chips when a new CPU is announced. Thus, when either of these chips is released, you can expect (or at least hope for) a drop in price for the other 486s.

Although Intel has only been dropping the price of its CPUs slowly, it could quickly squeeze AMD with one good price drop near the bottom of the 386 line. Rumors from within the company suggest that they may drop the prices on just the 386SX line to cut off AMD's most obvious advantage, and also stimulate the laptop market to help slow the demand for Apple's new PowerBooks.

The two chips that Intel will produce allow it to compete well with the bottom of the workstation market. The "clock doubling" 486 uses a new trick to make the CPU run twice as fast without forcing hardware manufacturers to make their whole system boards run twice as fast. If you look inside your PC, you will notice that there are many chips other than the CPU on the main board. When Intel increases the speed of the CPU, the hardware manufacturer has to make the other chips on the motherboard also run faster; of course, these faster chips are more expensive. After the release of the 50MHz 486, many chip companies thought that the cost of making the support chips run faster would be so high that faster 486 systems would end up pricing themselves out of the market.

Intel bypasses this problem with its forthcoming "clock doubling" CPUs. To the moth-

Continued on page 142

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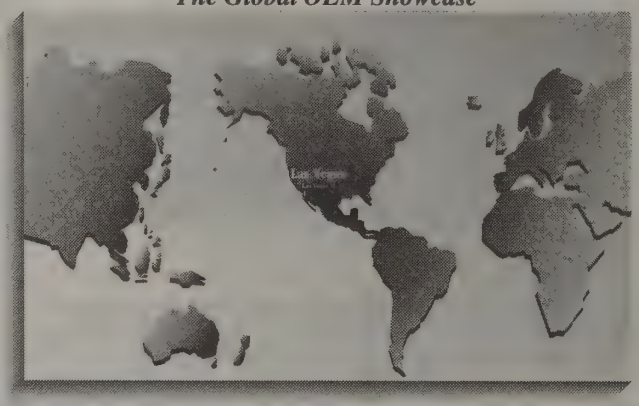

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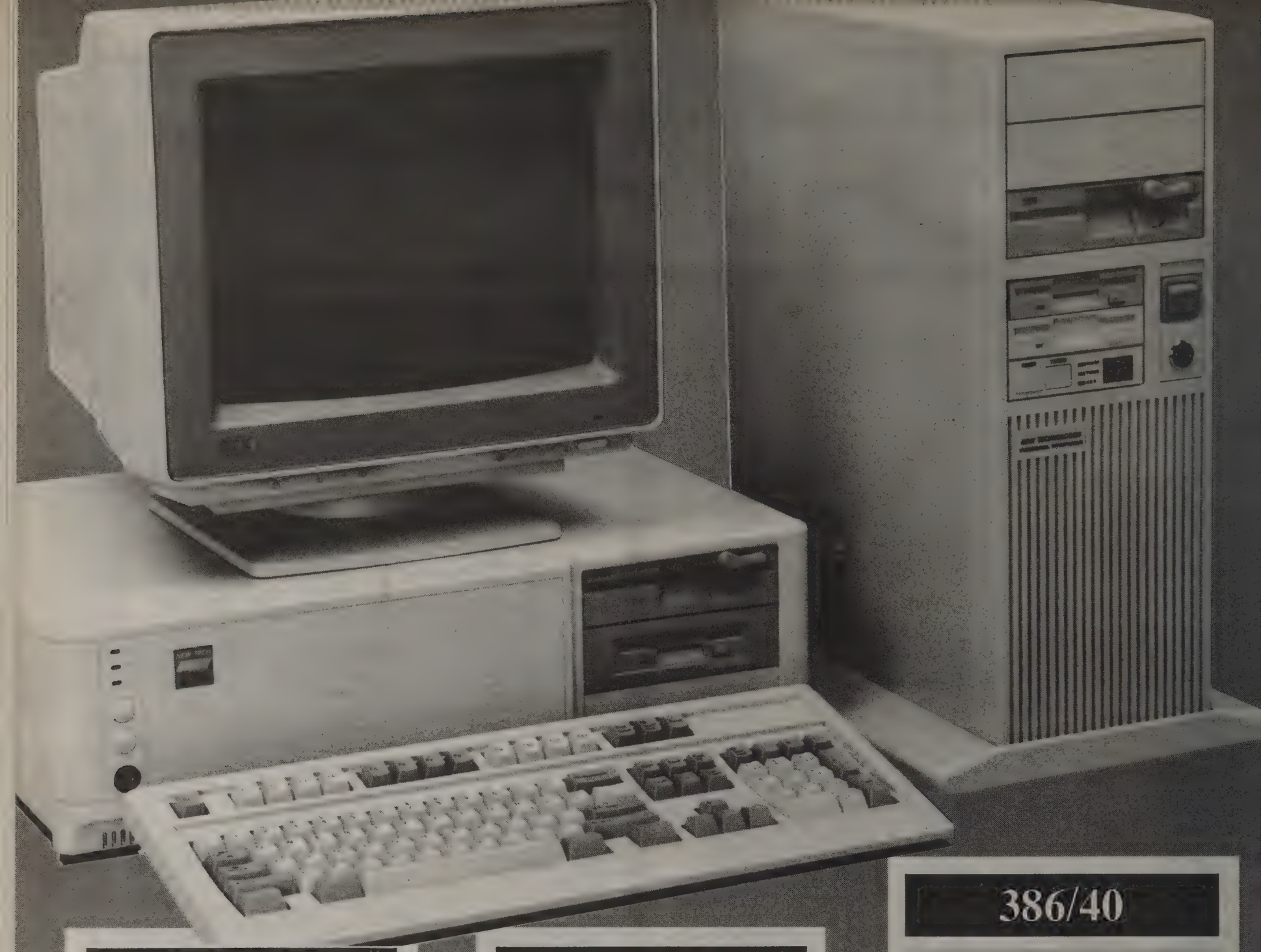

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Michelangelo

What Have We Learned?

BY PAUL HOFFMAN

The public relations people at companies like Microsoft, Borland, and Lotus may be wondering how they could get on the front page of the nation's newspapers as often as the person who wrote the Michelangelo virus. With all the wonderful new things that personal computers have been doing for people in the past few years, the computer news we get in the mass media, ironically enough, is based on technology's destructive aspects. It goes to show what sells news.

We're certainly fortunate that the news media hyped Michelangelo as much as they did, however. Had they not, thousands (or tens of thousands) of people would have lost all the work on their hard disks. Although the numbers bandied about by "industry sources" as to how many computers were infected with Michelangelo varied, it is clear that the virus had spread itself widely and that it was every bit as destructive as it was portrayed. As it turned out, in the aftermath of the media blitz only a few thousand people lost the data on their hard disks. That is, of course, a few thousand too many.

(In case you were on another planet during the first week of March, the Michelangelo virus had appeared on tens of thousands of Intel-based PCs. On March 6, when someone with an infected PC booted their system, the virus wiped out enough of their boot drive to make it unusable. In the week before the 6th, the Michelangelo virus got significant news coverage in every major newspaper, on television, and radio.)

It's always best to look at situations like this as learning experiences, bitter though they may be. This experience has taught us many things we'll do well to remember for many years. Given the attention span of many people, that may be asking for too much, but there are even a good number of short-term lessons to be learned from the virus, the news coverage of it, the way people reacted to it, and the relatively low number of people who were significantly damaged by it.

Many security professionals are very worried about complacency in the aftermath of the Michelangelo scare. Michelangelo may have been the most widespread of the truly destructive viruses, but it's not the only one.

MICHELANGELO IS NOT THE ONLY VIRUS

PC users everywhere are patting themselves on the back about having averted a disaster by wiping Michelangelo off their disks. Fine, but what about the hundreds (literally) of other viruses out there? If you think you're "safe" because you got one of the Michelangelo-specific virus checkers and either didn't have it or cleaned it off your system, you're dead wrong.

Many security professionals are very worried about complacency in the aftermath of the Michelangelo scare. Probably the vast majority of people scanned or cleaned their PCs using programs that only look for one virus: Michelangelo. Michelangelo may have been the most widespread of the truly destructive viruses, but it's not the only one. Also, those programs only checked for Michelangelo once. If you get the virus again, you may find yourself with an involuntarily cleaned hard disk next March 6. In this sense, the free Michelangelo-specific checkers may have been great in the short term, but they cause damage in the long-term by lulling the public.

If you have a PC, you should protect it. There are numerous commercial and shareware virus programs that both scan your hard disk for every known virus and help prevent viruses from getting on your system in the first place. If you don't use one of those programs, you're just as much at risk now as you were on March 5. In addition, you must be sure to use the newest version of the program at all times. Many people were hit by Michelangelo even though they had scanned their systems, because they scanned with software that came out before Michelangelo. No virus scanning program can predict how future viruses will act or how to identify them.

It is also important to remember that the PC is not the only computer that can be infected. In the days preceding March 6, many Macintosh owners joked about people calling them up to warn them about Michelangelo. They patiently explained that Michelangelo could only affect PCs. However, in ignoring Michelangelo and its effects, they may have forgotten that the Macintosh is just as susceptible to viruses as the PC is. To date, none of the known Macintosh viruses have had the disastrous effects of Michelangelo, but there is no way of knowing if that will hold true in the future.

ALWAYS BACK UP YOUR SYSTEM

Are you tired of hearing that yet? You should be.

It's sad that such an obvious statement

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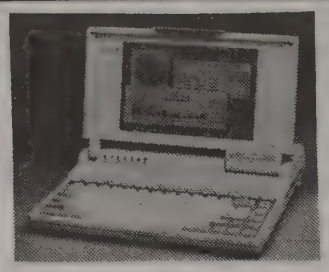

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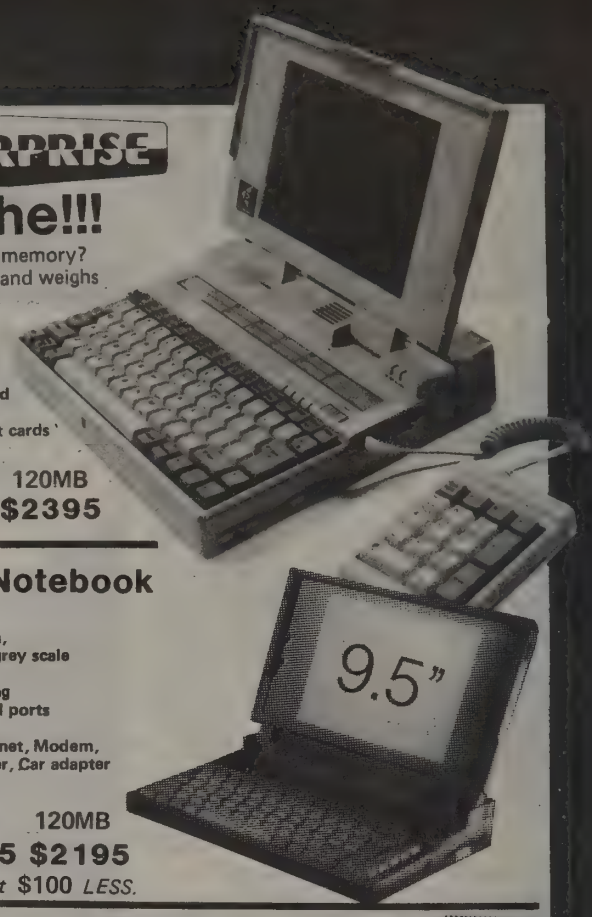

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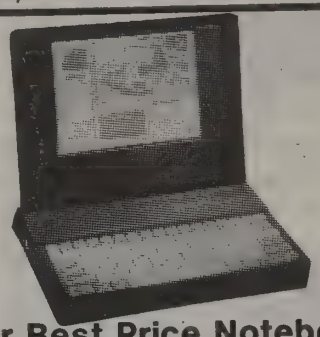

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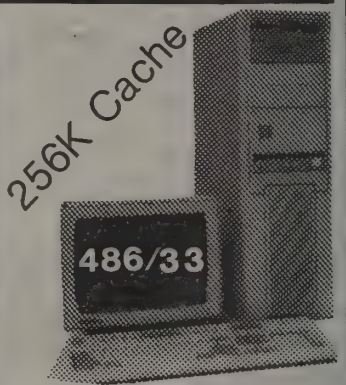

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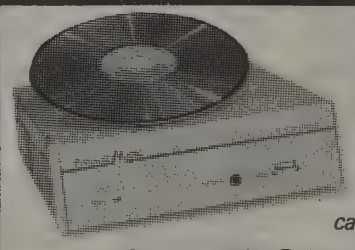

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needs to be made, but there were hundreds of people who lost a great deal of their work when Michelangelo struck because they hadn't backed up their disk in a week, a month, or a year. Not backing up your work regularly is like walking around with a sharp knife between your teeth: it's fine as long as you don't stumble. More importantly, the pain is easily avoidable.

If you backed up your hard disk every day, recovering from disaster—whether virus or theft—would be much simpler. Backing up should be as much a part of your computer routine as shutting off your PC. You can hardly back up too often.

Now that viruses are a part of the public mentality about computers, backups should be too. Fortunately, backups have already made it into the media to a certain degree. Near the end of last year's blockbuster, *Terminator 2,* one cop says to another that he hopes that the just-destroyed facility has off-site backups. Off-site backups are not as important for preventing virus disasters, but can certainly be important in many other circumstances.

ASSUME YOU HAVE A VIRUS

An unfortunately large number of people heard the publicity about the Michelangelo virus but didn't get any detection software because they thought they were safe. When they started their systems on March 6, they found out they were wrong. Some decided to wait and check for the virus on March 5, but still lost their hard disks when their PCs' clocks were many days fast. All made the same assumption: It won't happen to me.

"But I never downloaded software from a BBS." "No one but me ever uses my computer." "I only use store-bought software." Such statements are nice, but incredibly dangerous. Computer viruses are like sexually and blood-transmitted diseases: only 100% caution is sufficient.

Many people got the Michelangelo virus from commercial software. Companies like Intel and Lotus spread the virus on distribution disks of their software. Many people found the virus on new PCs: it had been accidentally put there by the PC manufacturers when they formatted the hard disk. Because there are dozens of ways for different viruses to get to your system, you should only assume you are virus-free immediately after running a virus-checking program.

The people who got full virus checkers instead of the Michelangelo-specific ones often found that they didn't have Michelangelo, but did have another virus, such as the now-common "Stoned" virus. Stoned can infect your floppies like Michelangelo, so people who found it had to then go through and clean off all the floppies they used. In one case, a person cleaning Stoned off his floppies found a diskette with a copy of Michelangelo that had not yet infected his system.

If you assume you have a virus at any time, you are much more likely to use virus protection software. You should certainly not assume that there will be nearly as much publicity for the next nasty virus; in fact, given the way the popular press treats "issues," there's sure to be much less.

A corollary to the assumption that you have a virus is the assumption that things can go wrong on your system at any time. Anyone who has used a computer for more than a week knows that mysterious things happen, then disappear. Sometimes they persist but never get explained. Sometimes they damage your data. Again, the best remedy for an unstable system, regardless of the cause, is regular and reliable backups of everything.

DON'T TRUST THE MAINSTREAM PRESS

The newspaper stories and television news-

Continued on page 144

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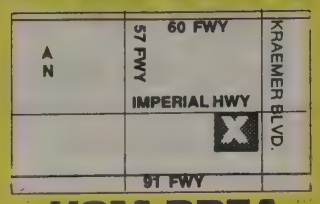

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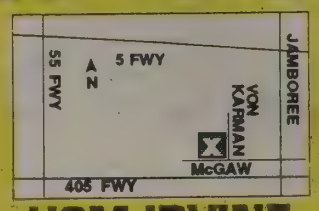

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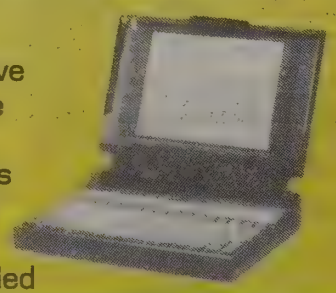

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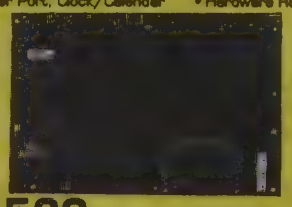

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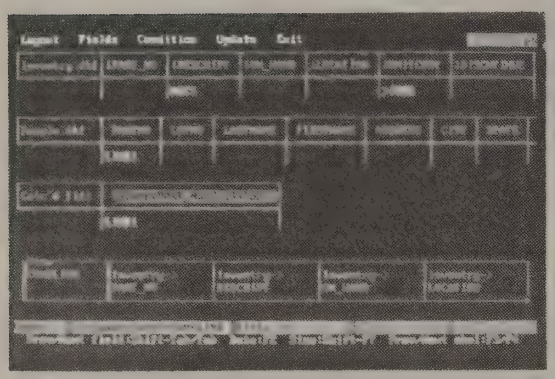
PRODUCT SPOTLIGHT

New Products

DATABASE SOFTWARE

DBASE IV VERSION 1.5

Borland International released dBASE IV v1.5, its anticipated upgrade offering new features and enhancements that increase productivity and performance for both the end-user and sophisticated developer. Some of the highlights include complete mouse support for easier navigation and record editing, new QBE (Query-By-Example) features, and new language commands for faster indexing and querying. The Automatic Installation senses what hardware and networking configuration you are using, whether you are running Windows, and whether to install disk cache for better memory management. Calculated fields can now be used as file links, as well. Enhancements that enable the developer to create faster and more powerful applications, include forty work areas, low-level I/O functions, and the ability to perform conditional compilation. ($795; upgrades from earlier versions of dBASE, $99) Borland International, Inc., 1800 Green Hills Rd., PO Box 660001, Scotts Valley, CA 95067-8400. (408)438-8400.



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ARAGO offers full compatibility with dBASE IV, including file, index, and syntax support; dBASE III command superset; and memo field compatibility. There are over three hundred new commands and enhanced performance features, such as an object-action, event-driven Panel Painter, an internal compiler that calls external C or assembly language routines, integrated business graphics, an on-screen tutor line, WordTech's R&R Relational Report Writer, QuickLink linker, and a Clipper-compatible Extor and Extend "C" interface. ARAGO allows character-based PCs to have the benefits of a Windows-like database interface without incurring added hardware costs. The ARAGO Professional package actually consists of two products: ARAGO dBXL, a fast dBASE IV-compatible interactive database management environment; and ARAGO Quicksilver, a dBASE IV-compatible .EXE compiler. (ARAGO dBXL v2.0, $699; ARAGO Quicksilver v2.0 $799; ARAGO Professional $1199) WordTech Systems, Inc., 21 Altarinda Rd., Orinda, CA 94563. (510)254-0900.

Continued

PRODUCT UPDATES

➤**Net Watchman 1.2**, from **The AG Group**, adds several notification and information management enhancements. The AG Group, Inc., 24540 Camino Diablo, Suite 202, Walnut Creek, CA 94596. (510)937-7900.

➤**Artisoft** announced an **offer to convert users of any NetWare 2.2 network** to the latest version of its LANtastic network for only $499. NetWare 2.0 users will save $2000 off the regular price of $2499 for LANtastic/AI unlimited network software that works with third-party adapters and supports up to three hundred users. Artisoft, Inc., 691 E. River Rd., Tucson, AZ 85704. 1-800-TINY-RAM.

➤**Autodesk** announced **3D Studio Release 2**, a major software upgrade providing new visualization tools and productivity enhancements for graphics professionals using 386/486-based PCs. For a limited time current users can upgrade for $395. Autodesk, Inc., 2320 Marinship Way, Sausalito, CA 94965. 1-800-525-2763. CompuServe: GO ASOFT.

➤**Banner Blue** announced the availability of **Org Plus for Windows**. Banner Blue Software, Inc., 39500 Stevenson Place, #204, Fremont, CA 94593. (510)794-6850.

➤**CADMAN** announced **ViewPort+ Release 3.10**. This upgrade allows users to quickly and accurately view drawings created by other CAD systems. CADMAN Corp., 223 E. Thousand Oaks Blvd., Suite 215, Thousand Oaks, CA 91360. (805)371-0424.

➤**Creative Labs** announced immediate availability of its **Sound Blaster Multimedia Upgrade Kit**. This package, which complies with MPC standards, contains the Sound Blaster Pro stereo system, a CD-ROM drive, Windows 3.0 with Multimedia Extensions 1.0, Sound Blaster Pro software, a MIDI kit, and five CD-ROM titles. Creative Labs, Inc., 1901 McCarthy Blvd., Milpitas, CA 95035. (408)428-6600.

➤**Hilgraeve** announced that the antivirus features in its **HyperACCESS/5** and **HyperCopy** software have been updated to automatically detect 315 computer viruses known by 644 names. Registered users of HyperACCESS/5 can download the updated software from the Hilgraeve Customer Service BBS. For a limited time HyperCopy is available free also by calling the Hilgraeve BBS. Hilgraeve, Inc., Genesis Centre, 111 Conant Ave, Suite A, Monore, MI 48161. 1-800-826-2760. BBS: (313)243-0645.

➤**Micro Logic** announced **Info Select v2.0**. The upgrade from the original Info Select is $39.95 and from Tornado is $75. Micro Logic Corp., PO Box 70, Hakensack, NJ 07602-9945.

➤**Variable Symbols** offers an update to its HyperCard-based **Mathematica Help Stack** to cover Mathematica v2.0. Variable Symbols, Inc., 2162 Shattuck Ave., Suite 202, Berkeley, CA 94704-1313. (510)843-8701.

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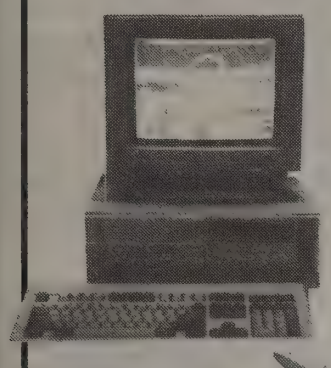

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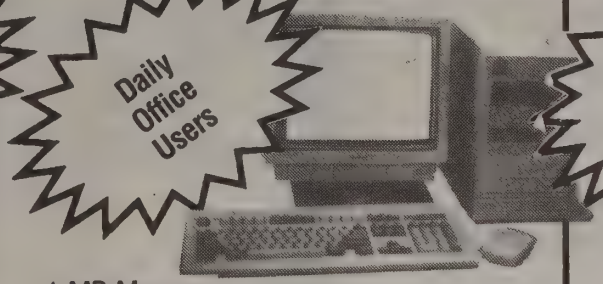

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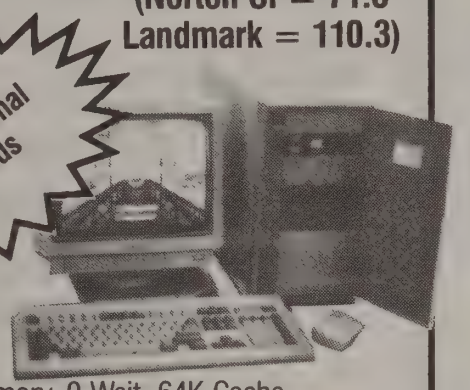

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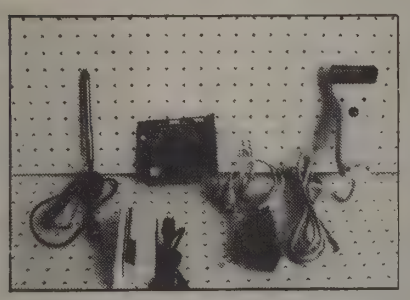

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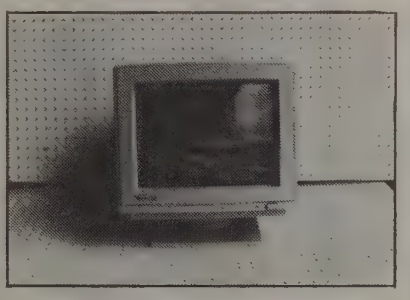

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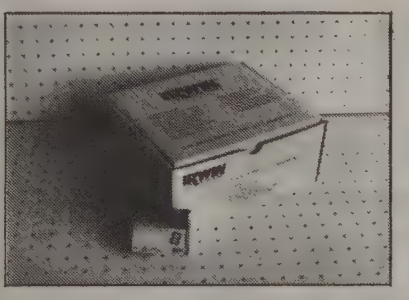

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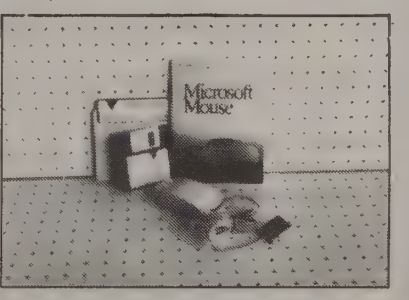

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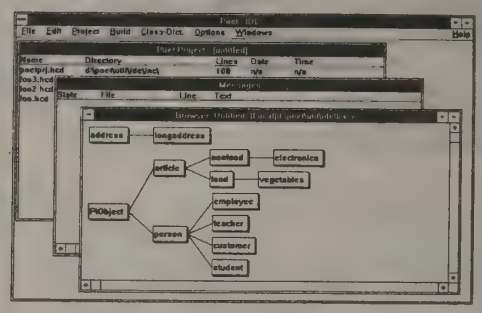


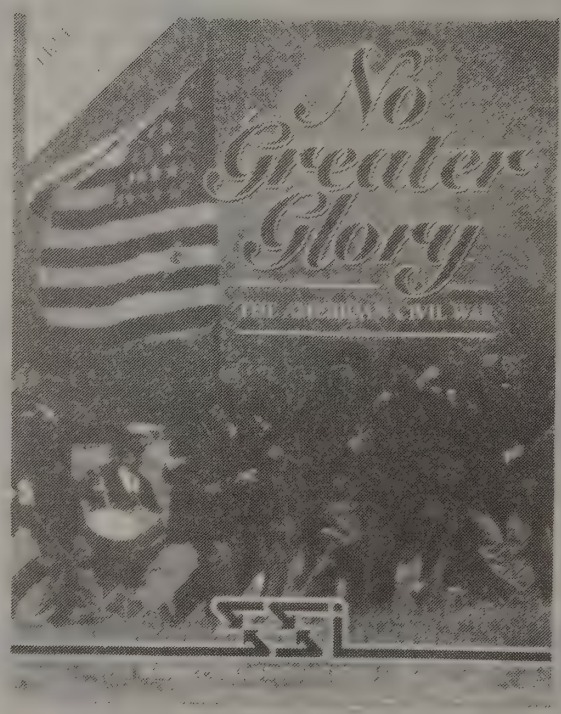
GAMES REVIEW

By Mike Markowitz

NO GREATER GLORY

Designed And Programmed By: Ed Bever
Published By: Strategic Simulations, Inc.
For: MS-DOS (640K, CGA or EGA graphics, requires 3.4MB of hard disk space, mouse supported), Amiga and Mac versions also released
List Price: $69.95

Recent films like *Glory* and the epic PBS series seem to have revived interest in the American Civil War (1861–65). Strategic Simulations' new game No Greater Glory, combines military strategy with simulation of the political, diplomatic, and economic dimensions of that conflict. The player takes the role of Presidents Abraham Lincoln or Jefferson Davis, making cabinet appointments and policy decisions about taxation and slavery, not just the movements of armies and gunboats.



One of the most baffling aspects of Civil War history is the long, dismal series of incompetent generals who led the Union armies from disaster to disaster. The game makes this understandable—the fourteen top commanders are rated for ability and initiative, but they also are ranked by seniority, and they have political ties to specific regions of the country. The generals with the highest seniority expect to lead the biggest armies, and they protest vigorously if they don't get the

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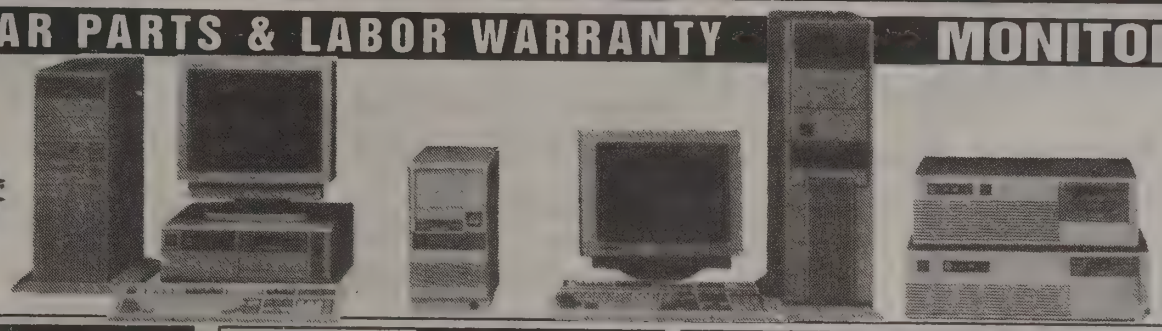

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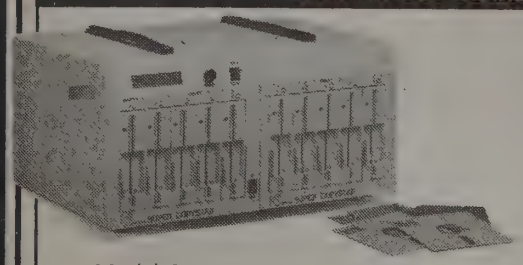

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The game map is divided into forty-three zones; each representing about half a state. Georgia, for example, is split into two zones: Atlanta and Savannah. States are grouped into eight major regions, such as the Gulf Coast, Mid-Atlantic, or Central Border (Kentucky and Tennessee). Each turn represents four months. The complete turn includes phases for cabinet appointments, civil affairs, finance, strategic movement, campaigning, and diplomacy. The game can end in many different ways: crushing military victory by either side, European intervention, negotiated peace, or loss of a Presidential election by Lincoln or Davis.

The user interface is quite complex and the sheer number of displays and options can be overwhelming, at first. The game also generates a variety of status reports, but cannot print them. This would have been trivial to program, and would have greatly aided the player in this long game.

The 110-page softcover manual includes a classic article by wargame designer Albert Nofi. As a bonus, the game package also contains a paperback copy of Stephen Crane's short novel, *The Red Badge of Courage*. No Greater Glory would be an excellent simulation for a high school or college history class, but hardcore wargamers might be disappointed by the lack of tactical detail.

The game uses irritating computer-beep versions of "Dixie" and "The Battle Hymn of the Republic" to accompany various events. Fortunately, you can turn off the music.

The game is installed from two high-density 5.25" disks by an automatic unpacking routine. You can play using the keyboard or a mouse; joysticks are not supported. (Strategic Simulations, Inc., 675 Almanor Ave., Sunnyvale, CA 94086. 408/737-6800)

Graphics: 7
Sound: 1
Historical Accuracy: 8
User Interface: 6
Overall Value: 7

MIG-29 FULCRUM

Designed By: Simis
Published By: DoMark
Distributed By: Accolade
For: MS-DOS (640K, VGA, EGA graphics, mouse and joystick supported) and Amiga
List Price: $49.95

Since it first appeared in fuzzy satellite photos on the runway at Ramenskoye, the MiG-29 "Fulcrum" has fascinated Western aviation experts, fighter pilots, and wanna-be's. This successful design combined traditional Soviet rugged simplicity with the best technology the KGB could steal from the F-16, F-18, and other Western aircraft programs.

Thrown out of work by defense cutbacks, the British Aerospace flight simulator design team formed their own software development group and found a publisher. MiG-29 Fulcrum is their first commercial entertainment product, published in the U.K. by DoMark and distributed here by Accolade.

The program includes a training mission and six combat missions of increasing difficulty. You can switch between a "simple" mode and a more realistic mode that is harder to fly and demands more performance from the computer. You have to hit ground targets, and dogfight with other aircraft, including the Mirage 2000, MiG-21, and Sea Harrier.

For a combat flight simulator with modest hardware requirements, this game delivers a lot of entertainment, and very good simulation of flight dynamics and controls. For example, the manual tells you how to perform the MiG-29's unique "tail slide" maneuver. The simulation of the helmet-mounted gunsight is especially impressive. You can "fly" your MiG using the mouse as if

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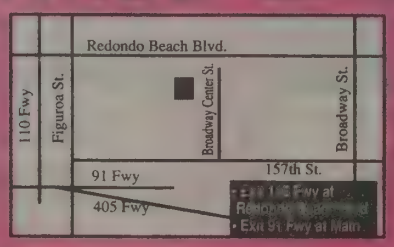

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it were a joystick—yes, this feels weird until you get used to it.

The package includes a colorful poster showing a detailed cutaway view of the MiG-29, and a slim, rather poorly designed manual. There are separate packages for the 5.25" and 3.5" disk formats, which saves a bit on production costs, but creates extra hassles for the poor retailer. (Accolade, Inc., 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128. 408/985-1700)

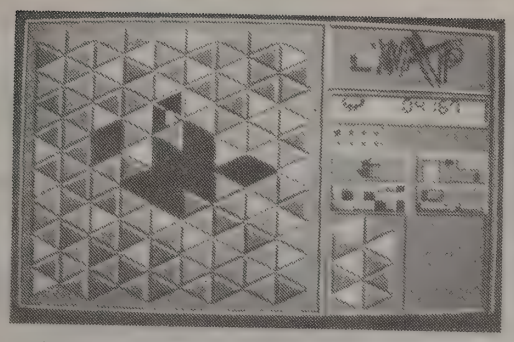
Graphics and Animation: 6
User Interface: 8
Accuracy: 7
Overall Value: 7

SWAP

Programmed By: Microids (J. Bertel, C. Bertrand, E. Forsans)
Published By: Titus Software
For: MS-DOS (512K, VGA/EGA/CGA, joystick or mouse optional) also Amiga and Atari ST versions.
List Price: $49.95

France, the land of logic and passion, produces excellent programmers. Look at Philippe Kahn. Some of the best computer games these days are European imports, and a start-up publisher, Titus Software, has released a batch of new titles, including Swap, programmed by a French team called Microids.

Each level of Swap consists of colored tiles which you are attempting to destroy. Using the cursor arrows, joystick, or mouse, you move the cursor to the intersection of two adjacent tiles. Click and the tiles swap places. If a tile is now adjacent to one of the same color, they both disappear. The object of the game is to clear the board completely. The more tiles you destroy in the smallest number of moves, the higher your score.



There are three hundred levels, and lots of special features to keep things interesting.

You have to plan your moves in advance to avoid forming islands or isolated groups. If you have too many scattered groups you can trigger an "avalanche," dropping all the remaining tiles to the bottom of the screen. Tiles can be square, triangular, or hexagonal, and in the VGA version they have an attractive three-dimensional texture.

The simple game controls consist of well-designed icons. You can turn off the music, but not the beeps that sound each time you swap a tile. This was my only complaint—a well-designed program should let you disable all sound effects.

The program's thirty-eight files take up 664K of disk space, and installation is a simple matter of copying the disk into a new subdirectory. The package included only a 3.5" 720K disk. A 44-page booklet provides instructions in English, German, and Italian. (Titus Software, Inc., 20432 Corisco St., Chatsworth, CA 91311. 818/709-3692)
Graphics: 9
User Interface: 9
Sound: 5
Overall Value: 8

REVIEWS
LAPTOPS

MLT 386DX NOTEBOOK COMPUTER

Manufactured By: Dennow Corp.
List Price: $2895
Reviewed By: Anna Couey

Continued

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PRODUCT SPOTLIGHT

Dennow's MLT 386DX Notebook Computer is a classy looking unit with a textured black casing that looks like velvet. At 25MHz, the machine is quick! It's supplied with 4MB of RAM (upgradable to 8MB) and a 60MB hard drive, along with battery and power packs. It measures only 2.4" high, 8.7" deep, and 11.6" wide. The MLT 386DX Notebook contains ports for an external keyboard, a printer or external drive, an external VGA monitor, an expansion box, a serial port, a scanner port, and a modem/fax phone jack.

If you plan to type with the machine on a desk, you might want to consider a wrist rest—the keyboard sits 1.5" high. North American models use an 82-key keyboard (83 keys in international models) and standard spacing, so it maintains the functionality and ease-of-use of standard desktop keyboards. One nice feature is that the keyboard includes a Ctrl and an Alt button on each side. But, to compensate for having fewer keys, PgUp, PgDn, Home, and End are

superimposed on the arrow keys. This means any time you want to PgUp, you need to press it in conjunction with Fn. When I started using the machine I found this step rather clumsy, but I did get used to it.

In addition to the luxury of speed, my favorite aspect of the MLT 386DX is the screen. It's a crisp 7.1" x 5.3" VGA-compatible LCD display, with 640 x 480 resolution and thirty-two shades of gray. Unlike other notebooks I've used with LCD screens though, the MLT 386DX screen remains high contrast in a variety of light sources. If you intend to use your notebook in unpredictable light settings, this is a big plus.

If you want to use your notebook on long airplane flights, beware, the MLT 386DX runs for about two hours on battery, and takes about four hours to recharge. (Dennow Corp., 1921 Carnegie, Suite 3-D, Santa Ana, CA 92705. 714/474-5488, 1-800-748-6388. Fax: 714/474-5492)

BOOKS

GETTING STARTED WITH MICROSOFT WORD 5.5

Written By: Janet Rampa
Published By: Microsoft Press
List Price: $22.95

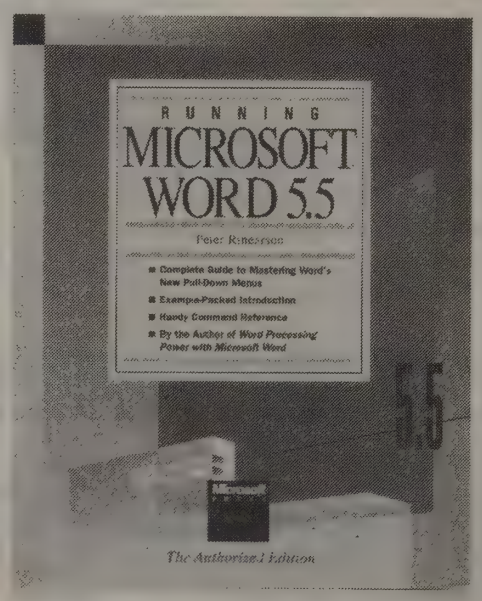
RUNNING MICROSOFT WORD 5.5

Written By: Peter Rinearson
Published By: Microsoft Press
List Price: $24.95
Reviewed By: Lenny Bailes

With all the publicity garnered by Microsoft's Word for Windows, the older, text-based Word 5.5 has been almost forgotten. Yet, text-based Word has always been a powerful word processor, often preferred by law offices and book writers for its powerful style sheets, outlining, and flexible formatting features.

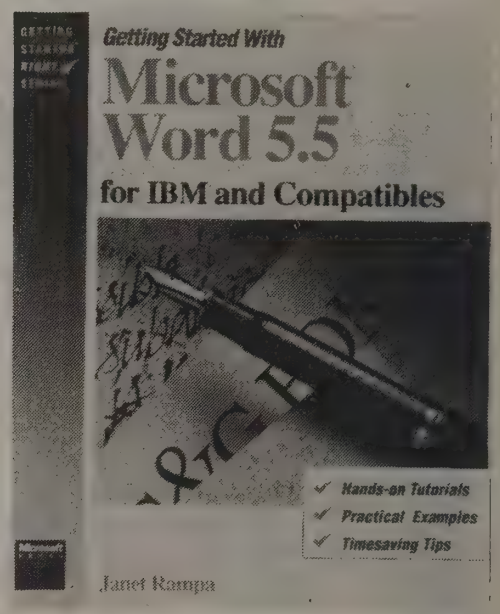
Microsoft Press has recently issued two guidebooks for using text-based Word, one in their Getting Started Right series, and one extensive complete reference. If you're a Word user, either of these might benefit you, depending on your personal requirements and learning style.

Getting Started with Microsoft Word 5.5 by Janet Rampa is not a book to use when you want to hunt up an esoteric command. It is well suited to first-time users of Word and novice computer users. It starts by introducing you to different types of diskettes and keyboards, and takes you through a basic



course in the most commonly used Word functions. The writing style is friendly, and the text is broken up with illustrative pictures. The only fault I find with it is that a few Word start-up options and customization parameters were omitted from the command summary at the end of the book. A user who wanted to know how to start Word in text mode rather than in graphics mode would not easily find that information.

Running Microsoft Word 5.5 by Peter Rinearson is a 680-page omnibus. If you want instructions for using side-by-side columns or working with the macro language, you'll



find them here. This is a densely written book with fewer pictures than Janet Rampa's book. It will be of use mainly for people who want expansions and clarifications of the manual rather than to beginners seeking a quick-start survey course. (Microsoft Press, Inc., One Microsoft Way, Redmond, WA 98052-6399)

THE LITTLE SYSTEM 7 BOOK

Written By: Kay Yarborough Nelson
Published By: Peachpit Press
List Price: $12.95

MACWORLD GUIDE TO SYSTEM 7

Written By: Lon Poole
Published By: IDG Books
List Price: $24.95

THE SYSTEM 7 BOOK

Written By: Craig Danuloff
Published By: Ventana Press
List Price: $22.95
Reviewed By: Matthew Leeds

Apple's $99 list price for the personal version of the System 7 upgrade may be too rich for most people's blood, particularly given the fact that most user groups make it available for the price of a few blank disks. There are however, sufficient differences in System 7 that a manual for once does come in handy. These three books are alternatives to Apple's manual, and each fills this need differently.

The *Little System 7 Book* is sort of the *Reader's Guide* version of a manual for System 7. It covers most of the new features that users will find important (changes in Finder,

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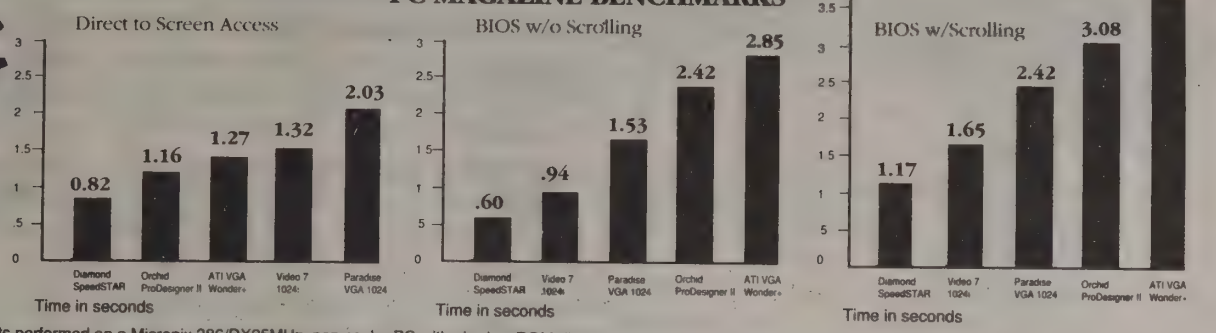

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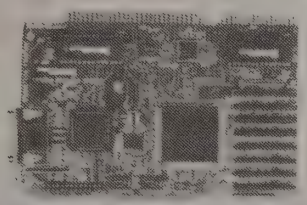

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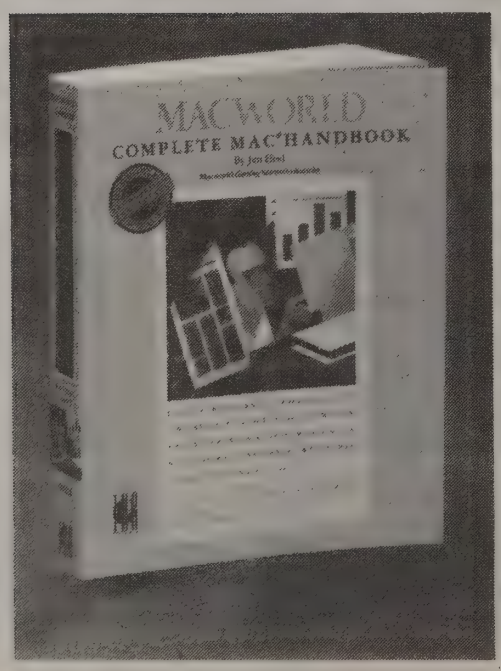
fonts, aliases, file sharing, etc.) but offers little or no detail on many important specifics. It serves well as an introduction to System 7, but does not substitute as a technical manual. For example, there is no discussion of troubleshooting init installation, a frequent source of problems when System 7 is first installed.

The *MacWorld Guide to System 7* is a much more in-depth look at System 7. It contains expert advise on Finder changes, Aliases, TrueType fonts, live copy & paste, memory management, and file sharing. Each chapter also contains many undocumented features of System 7. There is also a listing of compatible hardware and software including version numbers, equipment requirements, and company telephone numbers. There is even a full chapter on changes to the System Folder and installing inits.

Danuloff's *System 7 Book* also contains complete technical information on the real-world hazards of switching to System 7 and how to overcome them. Of particular interest to Mac cultists is the historical perspective that Danuloff brings to each element of the Mac. You can learn, for example, that System 1.0 was released in January of 1984, that it included a System Folder with twenty-two items, and took up 225K of disk space. You can decide if this lets you use System 7 more effectively. (Peachpit Press, Inc., 2414 Sixth St., Berkeley, CA 94710. 510/458-4393. IDG Books, Inc., 155 Bovet Rd., Suite 730, San Mateo, CA 94402. 415/358-1250. Ventana Press, Inc., PO Box 2468, Chapel Hill, NC 27515. 919/942-0220)

MACWORLD COMPLETE MAC HANDBOOK

Written By: Jim Heid
Published By: IDG Books
List Price: $26.95



Reviewed By: Matthew Leeds

Jim Heid writes the "Getting Started" column in *MacWorld* and this book is essentially a collection of those columns. It's an excellent resource for the beginning Mac user who needs an overview of a specific area of hardware or software use. "Using the Mac" runs through the gamut of possible applications, including word processing, desktop publishing, spreadsheets, data bases, and multimedia. While many of the leading titles in each area are mentioned, no attempt is made to evaluate the relative merits of any specific title.

"Mastering the Mac" is a more technical look at how the Mac operates, what maintenance is required and how to perform it, some basic troubleshooting guidance, and a quick overview of programming. The third section, "Expanding the Mac," explains how to upgrade the internal hardware (memory, display, accelerators, etc.), what peripherals are available for the Mac, and some information on networking. Each section has great illustrations, charts, and diagrams that make it much easier for the neophyte to follow the explanations. If you've little or no previous exposure to either computing or the Mac, this book could be very informative. (IDG Books, 155 Bovet Rd., Suite 730, San Mateo, CA 94402. 415/358-1250)

THE PROGRAMMER'S PC SOURCEBOOK, SECOND EDITION

Written By: Thom Hogan
Published By: Microsoft Press
List Price: $39.95
Reviewed By: Birrell Walsh

Occasionally we get a technician's book that belongs in as many libraries as possible. *The Programmer's PC Sourcebook* (second edition) is such a book. It's by Thom Hogan, published by Microsoft Press.

It is tables, ladies and gentlemen—literally hundreds of tables. The tables tell you the pinout patterns of various chips. They tell you exactly how your processor's registers look as they enter and exit from all the DOS calls. They tell you the file formats for DOS .EXE and .COM files.

The book includes character sets, BIOS and Expanded Memory calls, archaic information like cassette control, and fresh information like CD-ROM extensions. There is device access and control information for modems, mice, joysticks, and video cards. There is a whole section devoted to Windows arcana: datatypes, file structures, include files, metafiles. Do you want to know how to set up a WIN.INI file? It's here.

By now you know if this book is for you. To those who stopped reading, farewell. But to those who say, "I'd like to know what this means, but I never will," read on. It is inevitable that one day, as you tinker around on some project, you will need to know the exit codes returned by DOS commands. They are on pages 2–9. The day you need a piece of information of this degree of technicality, you usually need it urgently. The $39.95 price tag on this book will probably seem cheap. And when you have the book, and know where to look up the information you need, you will have graduated to expert status.

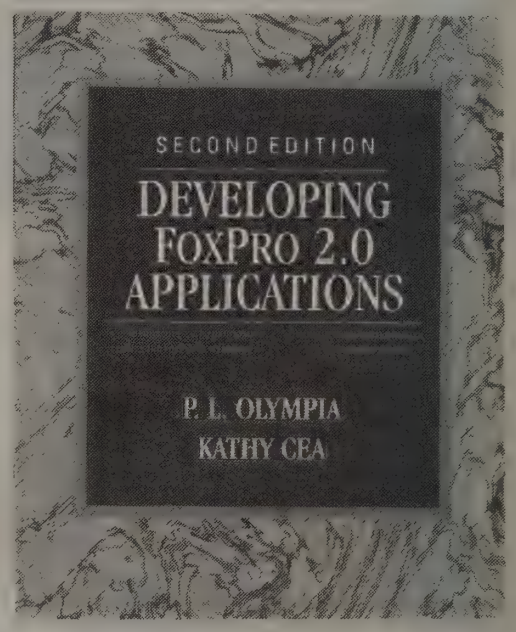
DEVELOPING FOXPRO 2.0 APPLICATIONS

Written By: P.L. Olympia & Kathy Cea
Published By: Addison Wesley
List Price: $26.95
Reviewed By: Thomas Schlegel

The authors of *Developing FoxPro 2.0 Applications* characterize their work as beginning where the FoxPro manuals end. This statement should be taken in the broadest sense—this is more than just a reference book for FoxPro developers. This book is relevant to anyone who maintains dBASE language applications and, generally, for experienced users who would like a greater understanding of database management.

The authors cover a wide range of topics relating to using database. There are, for example, sections on text manipulation and memo fields, string manipulation, indexes and sorting, multiuser environments, and FoxPro's SQL implementation. There is also a good section on the general principles of application development and database design. Nondevelopers who are interested in how the applications they use are constructed or could be modified will also benefit from this discussion.

Although the authors do not discuss it directly, the thoughtful reader will discover that this book is beneficial for understanding the issue of the diverging dBASE standard. Users, for instance, can run FoxPro 2.0 in a FoxBase-compatible mode, which is also dBASE III-compatible. However, FoxPro offers a developer a significantly different, more powerful environment, similar in some respects to the relationship between dBASE III and IV. The authors also outline a detailed approach to developing applications in FoxPro 2.0. This information would be useful to anyone trying to decide between the various dBASE implementations.



Developing FoxPro 2.0 Applications is strongly recommended to all reasonably sophisticated dBASE language users. It is a vital reference for a FoxPro 1.x developer that decides to upgrade their skills to 2.0. ■

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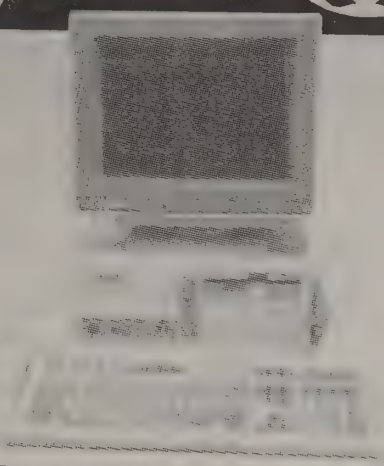

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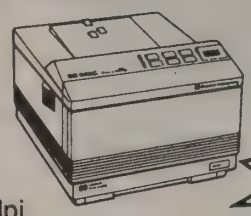

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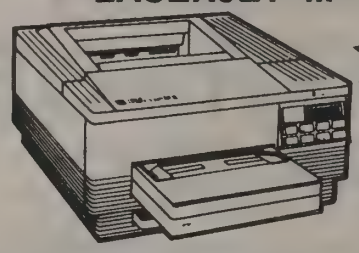

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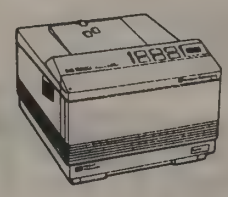

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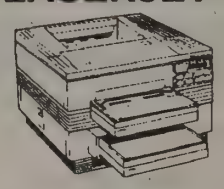

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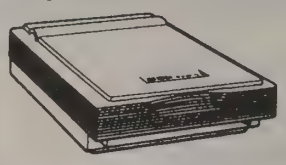

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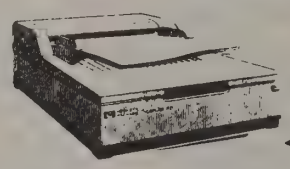

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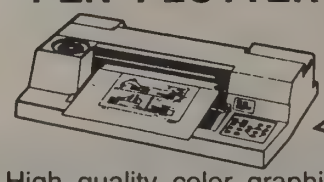

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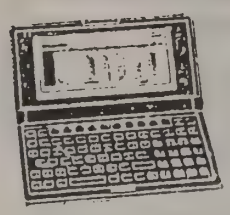

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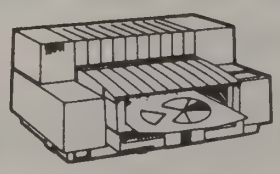

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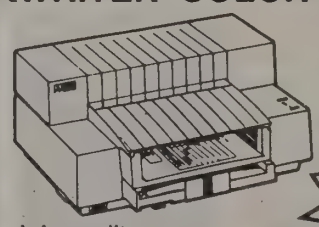

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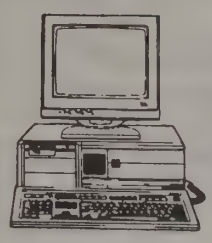

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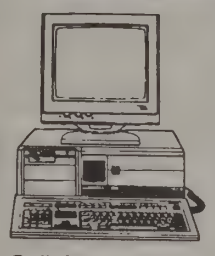

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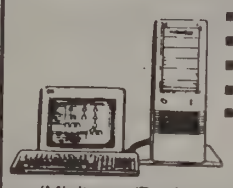

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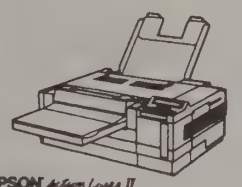

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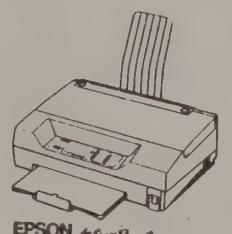

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Continued from page 30

INSTRUCTING CALIFORNIA POLITICIANS ABOUT USING OUR TAXES

[please copy, post, and circulate, *widely*]

Approaching tax-day emphasizes that, last year, we again worked much more than a third of the year for the government and politicians—and that's *without* accounting for our *less*-obvious taxes and costs for regulations. This year, let's tell them how *we* want them to use the hard-earned money that they take from us. When we send in our taxes, let's also *send copies of these* ***instructions-to-politicians*** *to our current and potential elected representatives, especially to this year's political candidates.* (Let's not blame the IRS or State Franchise Tax Board; they're just doing what our elected representatives tell them to do.)

Please feel free to copy this to friends, neighbors, customers, business associates, and company and community bulletin boards.

See the February, 1992, issue of *MicroTimes* for a copy of the *federal* tax-use form and *federal* budget for the 1992 fiscal year.

And so politicians can't bury the results: If enough people send a completed copy to me, I will compile and distribute or publish the results—with copies to appropriate media and officials (to the extent that I can cover data-entry and publication and distribution costs). Please at least include your ZIP code for locale identification.

If you include name and address (plus fax number and electronic-mail address, if available), I will send a copy of the results. Your personal information (if you list it) won't be disclosed, but I will summarize the number and percent of named respondents.

☐ Jim, I am sending some loot to help cover processing and publicity/distribution expenses. (After data-entry expenses, any/all remaining donations will be used for wider distribution and/or publication, possibly even including ads. My time/work is entirely pro bono. —JW)

-or-

☐ Jim, I want something for nothing. Process my data and give me the results, but I'm not willing to help pay any of your out-of-pocket expenses. (If *this* option is widely checked, then we will know what drives many of our tax-and-spend politicians, won't we?)

—Jim Warren, occasional "political irritant," 345 Swett Rd., Woodside, CA 94062; *fax/*(415)851-2814; *e-mail/*jwarren@well.sf.ca.us

[For identification purposes only: *MicroTimes* contributing editor & "futures" columnist; Autodesk, Inc., board of directors member; *InfoWorld* newspaper founder; PBS's *Computer Chronicles* founding host; *Dr. Dobb's Journal* founding editor; First Conference on Computers, Freedom & Privacy (1991) organizer and chair; Electronic Frontier Foundation 1992 Pioneer Award recipient; etc.]

Note: Perhaps this illustrates part of our fiscal problem—apparently no one asks about *current*-year expenses:

In seeking data on this fiscal year's adopted California budget, I had to talk to 14 staff—*fourteen!*—in the Governor's office, Treasurer's office, Controller's office, three legislators' offices, the Department of Finance, and the Legislative Analyst's office. Most of them promptly offered charts of what lawmakers *hope* to spend, *next* year; they had those details readily available. However, only the last two could figure out where *this* year's summary might be, and none could identify an authoritative published summary. When two faxed summaries, one was hand-written, the other was a page from a computer file, and both differed from FY1991–92 adopted-budget data sent only weeks earlier from another state senator's office. The most recent ones had different categories, differed by $200,000 in the same category, and only one mentioned $40,901,900,000 being spent from funds other than the General Fund.

To: _____
_____
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This is a *very serious matter to* me, even though this note is a form. *Please respond and tell me* how much of my earnings *you*, as my elected representative, want to take in taxes, and how much *you* want to spend in each budget area. Please send me _____ copies of your response for my friends, neighbors, and business associates. (And, a lack of response will be noted as a response.)

	How to use my taxes—:		**current state allocations:**		**Fiscal 1991–92 California Expenditures**
	percent	*dollars*	*percent*	*estimated exps.*	*[from Cal. Dept. of Finance "ch:estexp.100" 3/13/92]*
1.	%	$	23.4%	$ 19,803,200,000	K–12 Education
2.	%	$	12.3%	10,404,400,000	Higher Education
3.	%	$	40.8%	34,511,000,000	Health and Welfare
4.	%	$	4.2%	3,531,000,000	Youth & Adult Correctional
5.	%	$	7.3%	6,168,000,000	Business, Transportation & Housing
6.	%	$	3.3%	2,756,700,000	Resources/Environment
7.	%	$	8.8%	7,445,800,000	Legislative, Judicial, Executive & Other
8.	%	$	?%	*not listed*	*Interest & Debt Service*
9.	%	$	?%	*not listed*	*reduction of the state debt*
10.	%	$	?%	*not listed*	*tax reduction*/tax refund/tax rebate to me
my tax:	100.0%	$	100.0%	$ 84,620,100,000	total from General Fund & other state funds

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*Optional VGA Monitor & 1.44 MB Floppy Pictured

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Virus Hell—MBDF To Michelangelo

Better Safe Than Sorry

BY DAVID MORGENSTERN

BMUG

The bugs are out there, in our software, in the garden—even in our lives. They're a fundamental part of our 21st century existence, even though they've been around since the middle Carboniferous Period.

There's nothing better to bring the entire family to the edge of despair than Algebra homework. My daughter, Ariela, was having trouble with a particular math problem and asked me for assistance. A father-daughter bonding opportunity. What could be better?

We covered entire workbooks with our calculations, trying to solve the equation. The same wrong answer kept appearing, and even I know that only on superduper high-level quantum classroom blackboards, or the Dr. Ruth show, does five equal nine. In algebra, these small differences do matter.

So we called in a consultant, her grandfather, a mathematical pro, who instantly verified that the problem was impossible, and was either a trick question or a misprint. The inevitable printing bug!

DEATH ROW SOFTWARE —WE WISH!

The deluge of reports about the widespread destruction caused by Michelangelo virus for MS-DOS computers seemed to follow the real flooding in the State. Over an aprés-meeting slice of pizza, we counted our blessings about the lack of activity on the Macintosh virus front. There had not been a significant new virus since last August. Wouldn't you know, the instant we opened our mouths, a new virus hit the networks!

The beast is the MBDF-A virus and an accompanying Trojan horse. The virus was discovered in Wales and was traced to some games on a number of the Internet archives. The games were named *10 Tile Puzzle* and *Obnoxious Tetris*. This is a common way for infections to spread—spread the virus on a game or pornographic program, with an interesting title. Try it, you'll like it.

In addition to the two games, a third game named *Tetricycle* or *Tetris-rotating* was a Trojan horse, which installed the virus on computers running the program. A Trojan horse is software that secretly performs a malicious action when launched. It can infect you with a virus, reformat your hard drive, or rename all your files. One of the first Macintosh viruses was spread by a Trojan horse called Sexy Ladies. Not!

The Trojan horse, or even the virus itself, seems to have been written by a couple of students at Cornell University, calling themselves "Death Row Software." Less than a week after the virus was discovered, two sophomores had been arrested, arraigned, and were sitting in the slammer. "It's a bum wrap—we wuz FrameMakered!"

The MBDF virus is similar to the MDEF virus, and attacks the MBDF resource. MBDF stands for "MenuBar Definition" which is used by the system to draw and process items in the menu bar, just as the MDEF resource is used for menus.

The MBDF virus is "non-malicious," but can cause damage. The infection process takes quite a while to infect the System file—so long that people often think that their Mac is hung, so they restart. Since the virus is in the process of chewing up important parts of the System file, the restart results in a badly damaged System file, which cannot be repaired. The only solution is to reinstall a new System file from scratch.

Other actions of the MBDF virus caused some programs to crash if something in the menu bar was selected with the mouse. The BeHierarchic shareware program stops working correctly.

A few developers (including Claris and Mathematica) are now including special self-checking routines in their programs to help warn users about infections (and perhaps check if users are tampering with the registration information). Infected Claris applications will indicate that they have been altered and will refuse to run. This action resulted in an early detection of the virus, and helped the anti-virus programmers get a quick jump on fighting the outbreak. All the anti-viral programs had patches within three to four days after MBDF's discovery.

Disinfectant 2.6 is the version that knows about MBDF. The BMUG Utilities V1 disk always has the latest anti-virus software.

A warning to users of PC-emulators, like the Insignia Solutions' Soft PC. The Michelangelo virus, and many other PC viruses, can attack your Macintosh hard disk drive if the PC programs you're running are infected. You should run the appropriate anti-virus software for each platform to be really safe.

SOME DAY MY PRINT WILL COME

The big joke floating around Guy Kawasaki's pre-Expo warm-up conference last January was a supposedly real memo to the users in a company running a mixed environment of Macintoshes and Windows/PCs. It announces a new laser printer on the network, and how to print.

From: xxxxxx xxxxxx
Date: Wed, Oct. 23, 1991 11:25 AM
Subject: Phaser on line
To: xxxxxxxxx

The Phaser II PX is now on line and accessible from both the MAC and the PC. The Drivers are in Y:\ALDUS\DRIVER\PHASER.
To use the printer do the following.

MAC System 7.0

1. Select the printer in the Chooser and print.

Windows

1. Replace the Capture command for LPT3 in your startnet.bat file with the following. Capture l=3 q=PHASER_II s=VCSLIB a nob NT
2. Reboot your computer.
3. Run Startnet.
4. Start Windows.
5. Double-click on the Control Panel icon.
6. Double-click on the Printers icon in the Control Panel dialog box.
7. Click on the Add Printers button.
8. Select the Apple LaserWriter II NT/NTX PostScript Printer.
9. Double-click Install.
10. When the use current or new driver

Copyright© 1992 by David Morgenstern. All rights reserved. *David Morgenstern believes that computers and BMUG can cultivate a positive change in the world. He volunteers time at BMUG, when he's not working his "regular job," writing, or prowling around the BMUG Bulletin Board. He can be reached through the BMUG office, AOL: daviD eM, CIS: 72030,1607, and Internet: davidm@sfsuvax1.sfsu.edu.*

Frank Khulusi, President of Creative Computers, with his wife, Mona.

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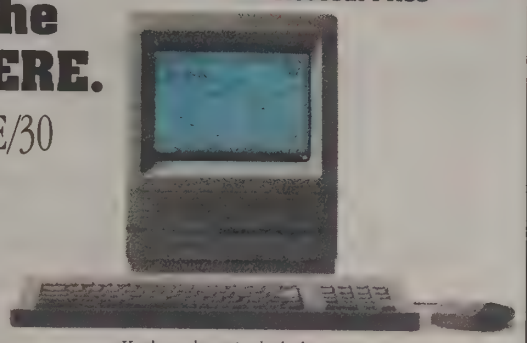

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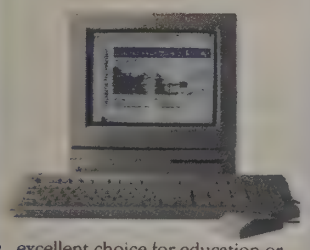

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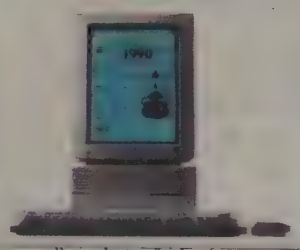

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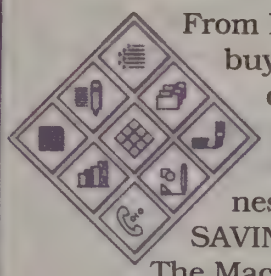

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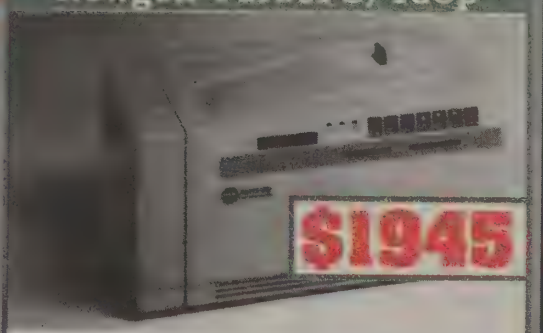

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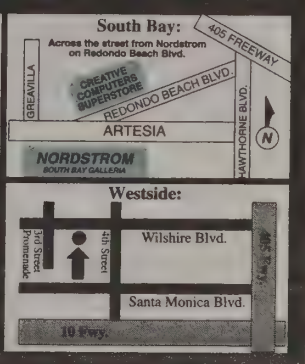

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prompt comes up click on Current.
11. Click the Configure button.
12. Select LPT3: for the printer port.
13. Click on the Setup button.
14. Click on the Add Printers button.
15. Type in the path Y:\ALDUS\DRIVERS\PHASER\WINDOWS in the path prompt.
16. Select Tektronix Phaser II PX printer.
17. Click on the Add button to add the printer.
18. Click the Done button.
19. Click OK in the Add Printers dialog box.
20. Click OK in the Configure dialog box.
21. Click Active in the Printers dialog box.
22. Click OK in the Printers dialog box.

If you have any questions just drop me a note or go by my office.

Thanks,

xxxxxxxxx

Ha-ha—we can all crack a smile, and thank our lucky stars that we're not running Windows. But is the comparison really fair? Is Windows that bad, and the Mac that good?

Since the Windows setup is counting every mouse click, we should too. A more accurate version would include:

1. Open the Chooser from the Apple Menu.
2. Click on the LaserWriter driver.
3. Close the Chooser.
4. Select Page Setup from the File menu.
5. Click OK in the Page Setup dialog box.
6. Select Print from the File menu.
7. Click OK in the Print dialog box.

This is still a whole lot better than the situation for the Windows user, but not perfect. There was a recent "contest" of graphic user interfaces sponsored by a PC-pushing magazine. The testers supposedly knew nothing about computers, were given no instructions, and no documentation. They were then given a list of tasks to accomplish.

As we might imagine, given the sponsorship of the test, Windows won, followed by OS/2 Presentation Manager. NeXTstep and the Macintosh were way down the list. The users couldn't figure out that the Apple was a menu, or that the Chooser had anything to do with selecting a printer driver. Most of the users failed the test to switch printers.

The latest rumor floated during the weekly printer-problem portion of a recent BMUG meeting is that the New Print Architecture (NPA) will hit our desktops in early 1993, perhaps at the San Francisco or Tokyo Expos. NPA was introduced at the 1989 Developer's Conference, and was supposed to come with System 7. The technology will help printer hardware developers create drivers more easily. The Chooser will also be replaced by simple menus in the Print Dialog box.

The new additions to System 7 will let users create special printing icons, called Desktop Printers. To print, a user simply drops a document on the printer icon—all done! The desktop printer that refers to a particular printer is configured once, describing the place on the network, driver, and other settings. Then it just prints.

One of last year's Mac Hack programming contest entries was an implementation of this feature of the New Print Architecture, DTPrinter. This hack by Leonard Rosenthol, a BMUG programming group leader, is on BMUG Utilities A1 disk.

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information, and to provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its twelve thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 pm(or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center St. (a half block from the BART station), is open to the public 9 am–5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries, around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM*™, a fantastic collection of public domain QuickTime videos.

Our sixteen-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! With our multi-line capability, you can have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the Internet at *bmug@garnet.berkeley.edu.*

To get some further information about BMUG please write to: BMUG, 1442A Walnut St., #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or FAX (510)849-9026.

PASS THE WORD

Here's an important notice to users of bulletin board systems (BBS) or other computer electronic mail services. Please be sure to use different passwords for each service.

Crackers, people that like to break into computers for "fun," can often get a hold of the passwords for a particular bulletin board. They will then log onto other services, and try the names and passwords there. If you use the same password everywhere, the crackers can log on as you, and cause a lot of mischief. This has happened on a number of Bay Area bulletin boards recently, so it's no joke!

It's difficult to explain away messages sent with your name and address in the header information included in each message. Sometimes these crank letters are ugly attacks of a racial, sexual preference, or sexist nature. There's no handwriting analysis to save the day, and appealing that certain grammatical gestures are not in your vocabulary will run up against a brick wall. The Semicolon Defense is something you'll only see in a murder mystery.

Here are some passing tips to avoid security failure:

• Long passwords are better than short ones. Make them at least seven to ten characters. Sometimes the villains trying to break into

Continued on page 144

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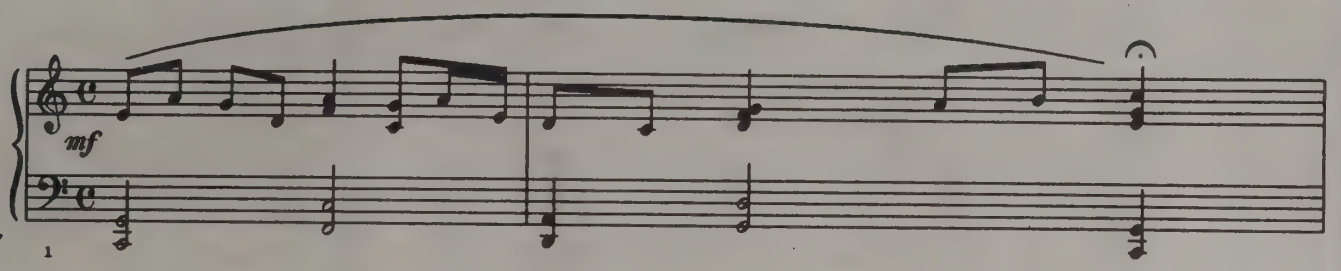

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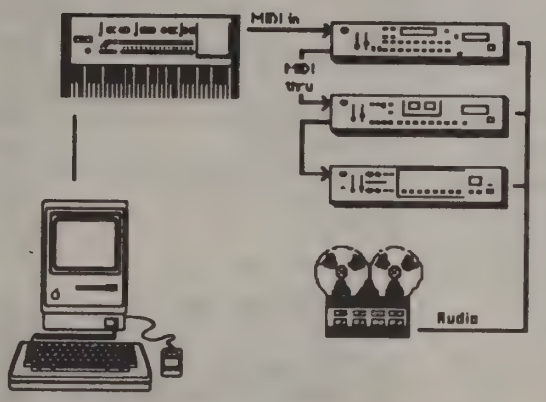

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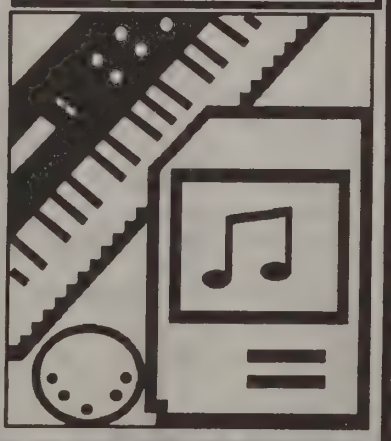

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A. Which one category best describes your company?
- ❑ 01 Manufacturing of computer equipment, computers, DP hardware, peripherals
- ❑ 02 Software development
- ❑ 03 Manufacturing
- ❑ 04 Agriculture, mining, construction
- ❑ 05 Transportation
- ❑ 06 Communications
- ❑ 07 Utilities
- ❑ 08 Finance, banking, insurance
- ❑ 09 Real estate
- ❑ 10 Health, medical service
- ❑ 11 Legal
- ❑ 12 Education
- ❑ 13 Data processing, computer service
- ❑ 14 Government
- ❑ 15 Consultant
- ❑ 16 Wholesale/Distributor
- ❑ 17 Research/Development
- ❑ 18 Engineering/Architecture
- ❑ 19 Advertising
- ❑ 20 Sales/Marketing
- ❑ 21 Personnel Placement
- ❑ 22 Entertainment
- ❑ 23 Other

B. Which one category best describes your job title?
- ❑ 01 Owner, Partner, President
- ❑ 02 VP, Gen. Mgr.
- ❑ 03 Marketing Manager
- ❑ 04 Business Manager
- ❑ 05 Sales Manager
- ❑ 06 Project Manager
- ❑ 07 Data Processing Manager
- ❑ 08 MIS Director
- ❑ 09 Systems Analyst
- ❑ 10 Engineer
- ❑ 11 Educator
- ❑ 12 Bus. Microcomputer Specialist

C. How many employees does your company employee?
- ❑ 01 Over 5000
- ❑ 02 2500-4999
- ❑ 03 1000-2499
- ❑ 04 250-999
- ❑ 05 100-249
- ❑ 06 25-99
- ❑ 07 10-24
- ❑ 08 Under 10

D.What department are you in?
- ❑ 01 Accounting
- ❑ 02 Administration Management
- ❑ 03 Communications
- ❑ 04 Data Processing
- ❑ 05 EDP/MIS
- ❑ 06 Education/Training
- ❑ 07 Engineering
- ❑ 08 Finance
- ❑ 09 Marketing
- ❑ 10 Operations
- ❑ 11 Personnel
- ❑ 12 Production/Plant
- ❑ 13 Purchasing
- ❑ 14 Research & Development
- ❑ 15 Sales
- ❑ 16 Other

E. What is your department's estimated budget for computer and computer related peripherals for the next 12 months?
- ❑ 01 Over $500,000
- ❑ 02 250,000 to 499,999
- ❑ 03 100,000 to 249,999
- ❑ 04 50,000 to 99,999
- ❑ 05 25,000 to 49,999
- ❑ 06 10,000 to 24,999
- ❑ 07 Under 10,000

F. Through what channels will your department purchase its 5 computers and peripherals?
- ❑ 01 Computer Retail Store
- ❑ 02 Distributor /Wholesaler
- ❑ 03 Value Added Reseller
- ❑ 04 Consultant
- ❑ 05 Mail Order
- ❑ 06 Manufacturer
- ❑ 07 Other

G. How are you involved in your company's purchasing decisions?
- ❑ 01 I approve purchase
- ❑ 02 I specify product and vendor
- ❑ 03 My opinions influence purchase
- ❑ 04 I do not influence purchasing

H. For how many personal computers do you have this involvement?
- ❑ 01 1 to 5
- ❑ 02 6 to 10
- ❑ 03 11 to 25
- ❑ 04 26 to 50
- ❑ 05 51 to 100
- ❑ 06 100 or more

I. Does your company have personal computers?
- ❑ 01 Yes ❑ 02 No

IA. Currently Own
IB. Plan to purchase within next 12 months.

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		BRAND NAME COMPUTER
		AT
		286
		386 SX
		386
		486
		COMPATIBLE
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		286
		386 SX
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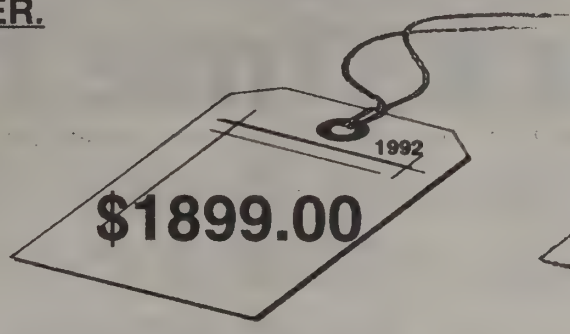
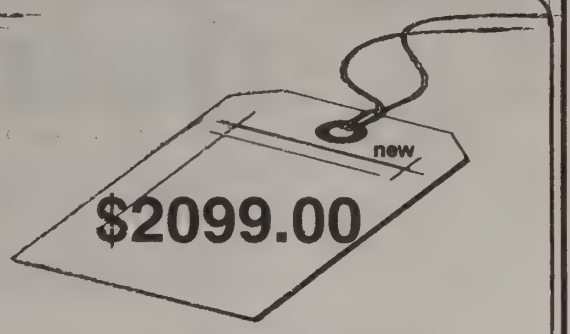


486DX33



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QuickTime Takes Off

Apple Technology Enables Great, Affordable Interactive Multimedia

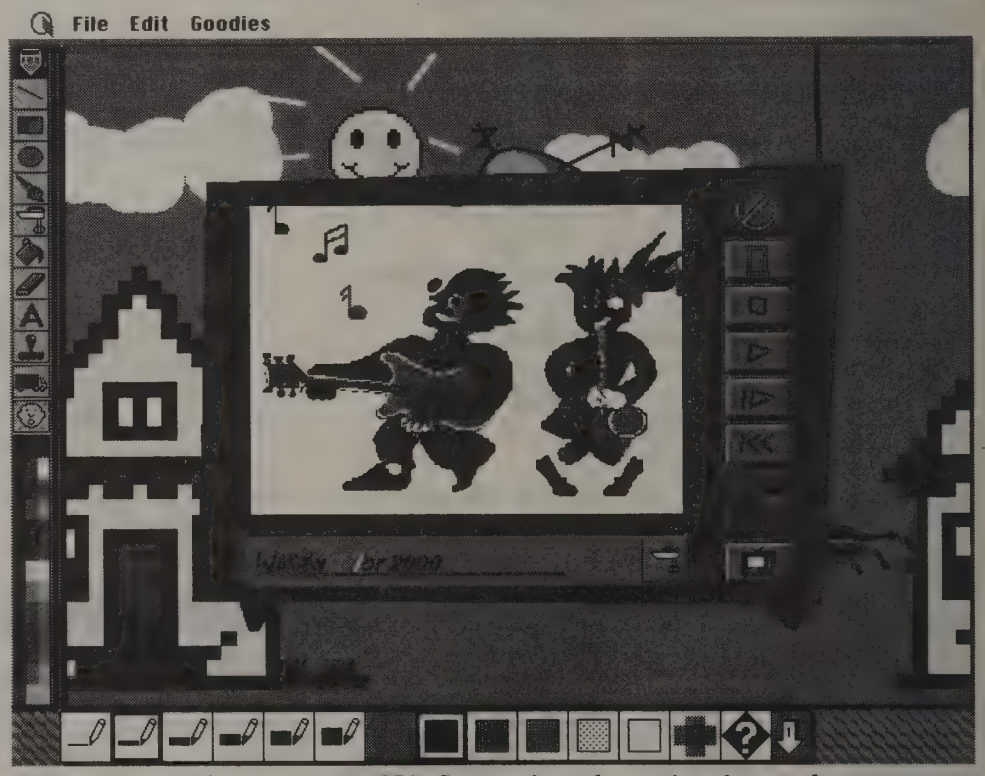
BY TONY REVEAUX

With the launching of Apple's new Macintosh software architecture for photos, sound, video, and animation, multimedia is now really clicking along in synch with QuickTime. Apple's term "dynamic data" is an apt description; currently, the average desktop Mac can support any kind of information expression without special boards or massive storage capacities.

QuickTime may or may not change the way we learn, buy, and sell, but it certainly has given a jumpstart to computer-aided multimedia. At the recent Macworld Expo in San Francisco, over one hundred vendors showed products and services dedicated to, or at least compatible with, QuickTime. Since then, hardly a developer or manufacturer with an ounce of Macness hasn't announced or promised deep QuickTime relevancy.

QuickTime will expand the base of low-end color systems, add wings to HyperCard, and strengthen cross-platform multimedia capabilities. QuickTime will also strain the response limits of many CD-ROM players, and the file size of QuickTime documents will impede floppy- and network-based distribution.

Unlike the Apple II line, the installed base of Macs has historically been a monochrome majority. This has been changing, especially in the last year. The Macintosh LC and lower-cost color monitors like those from Mirror and NEC, as well as Apple's 12" and new 16" displays, has made color an easier option for new users and upgraders. This expanding base is also helping to make the Mac a more reasonable choice for education—barely in time to carry on the cause from the fading Apple II. QuickTime, along with HyperCard and MacroMind Director, can make the Mac an incredibly effective platform for interactive learning.



Wacky TV, in the forthcoming Kid Pix Companion, plays animations and QuickTime video.

QUICK PIX

As an example of QuickTime's impact on computer-based communication, take a look at what's coming up for Brøderbund's Kid Pix. That's the runaway hit for both children and the adults who actually buy most of the software.

Kid Pix is a draw/paint/twist/shout program that stimulates creativity at all age levels. It's about to be joined by Kid Pix Companion, a QT-era expansion. I was shown a beta development version at Macworld, and even at that stage, it is an intriguing harbinger of personal computing in the '90s.

Companion sits on top of Kid Pix, where it provides QuickTime compatibility and serves as an editing and organizational toolkit for text, graphics, and sounds created in the original program. You can choose and save elements and sequences in Companion—and add QuickTime Movies—and see them arrayed as thumbnails in a storyboard format. There, you can click and drag them to different positions and save the sequences as Movies.

To create video movies, you'll need a video capture board, but you can make Movies of "slides" and animations from Kid Pix. There is already a growing number of motion clips from many sources, such as the BMUG *TV-ROM*, which has over one hundred PICT files and nearly four hundred MooV (QuickTime movie format) files with the same kind of variety—people, places, things, and novelties—as many graphic clip art collections. The BMUG *TV-ROM* also includes Popcorn—an enhanced QuickTime extension and player which can be used as an editor utility.

Digital video on a standard Mac changes the rules on what is

QuickTime will expand the base of low-end color systems, add wings to HyperCard, and strengthen cross-platform multimedia capabilities. QuickTime will also strain the response limits of many CD-ROM players, and the file size of QuickTime documents will impede floppy- and network-based distribution.

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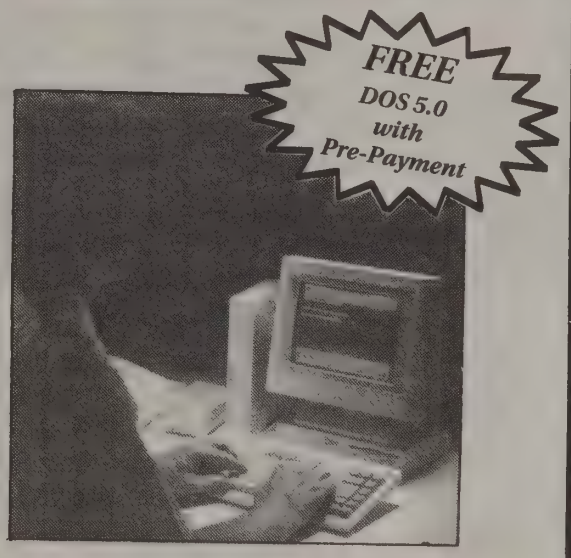

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RESOURCES

The QuickTime Starter Kit, $200 (available March)
QuickTime Movie Exchange Toolkit (for developers), **$79** (available early 1992)
Apple Computer, Inc.
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Kid Pix Companion $39.50 (available "soon")
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BMUG TV-ROM (CD-ROM), $50
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Berkeley, CA 94709
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possible. I hate to say it, but for the price of a couple of business lunches, Kid Pix Companion might eat the lunches of several low/mid-range presentation packages with more elevated tabs.

HYPERCARD GOES HOLLYWOOD

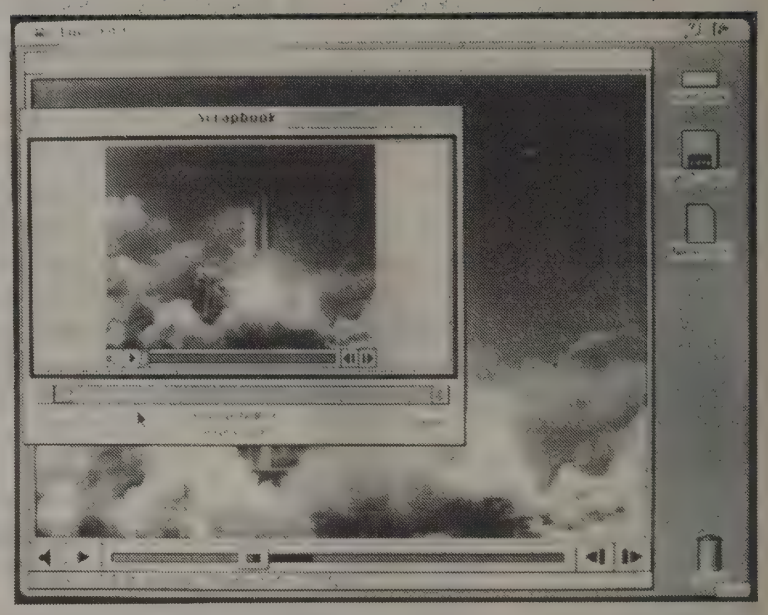
Claris's venerable HyperCard will soon be available in its new version 2.1. Along with many expected evolutionary additions and refinements, v2.1 will also support QuickTime. While it may not yet possess the color interface of Aldus' SuperCard, it will be able to bring up color in the window. External commands (XCMDs) can be configured from v2.1's QuickTime Tools.

You will be able to integrate digitized video, sound, photos, and animation so that they can respond to the same clicks as do other playback functions of HyperCard. This means that you can call up a named Movie to fill a window, play it in its entirety, go to specific frames, stop and start, or play preset loops. But the interactivity doesn't end at the window frame. You can place visible or invisible buttons over any x/y coordinate in any frame or series of frames of a Movie. The functional opportunities here are endless.

MEMORY BLOCKS

The CD-ROM is the favored delivery medium for QuickTime Movies, and, as CD-ROM drives are manufactured in greater quantities they will continue to drop in price.

But you should be aware that not all drives are fully compatible with QuickTime. While most recent models are fast enough to tapdance with the data rate of QuickTime, not all of the players out there can



QuickTime and EyeQ from New Video allow Mac users to play, edit, and move motion video between applications.

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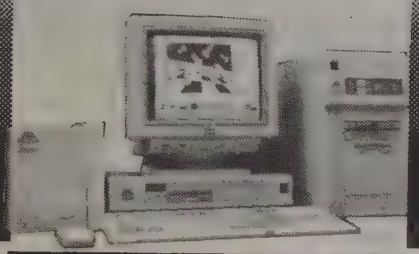

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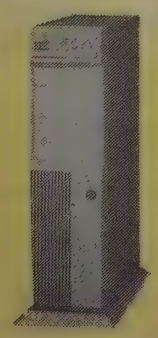
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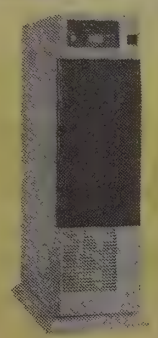
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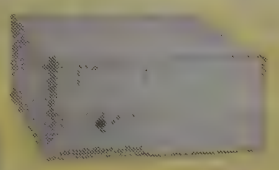
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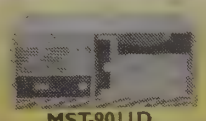
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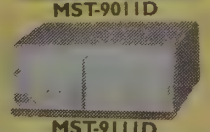
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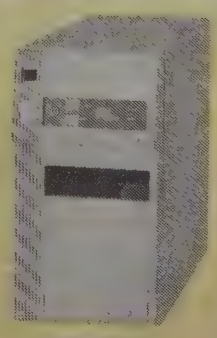
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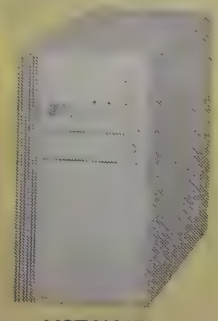
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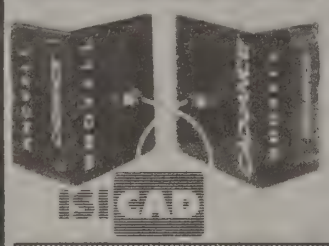

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keep up. The best way to determine compatibility before you buy (many salespeople just aren't really sure) is to get access to a copy of Apple's Golden Master CD-ROM. Try an Apple product dealer or a user group. Fire it up on the drive you're auditioning, bring up the "Evaluate CD for Movies" section, and follow through on its suggested test sequence.

QuickTime is a miracle of software compression/decompression, but its very immediate accessibility will lead to some frustrations. If you're using digitized video in multimedia for more effective communications, you want to be able to get it from one viewer to another in order to communicate. For the average user, swapping floppies is the standard way to transport data. A minute or two of QuickTime can mean big time in megabytes. Before you know it, you've topped 5MB.

While you can further compress a QuickTime file to be unstuffed at the destination Mac, there are limits to that, and many users will want to be able to fly, plug, and play. Still, QuickTime is an improvement over the 30–40MB files hauled on Syquest cartridges or Flopticals that digitized video has meant up to now.

According to some industry experts I asked, you'd better not hold your breath for greater compression efficiency in future versions of QuickTime. Instead, you should "enhance your system's storage capabilities." That's right; they're not going to lower the river—you're going to have to raise the bridge.

CROSS-PLATFORM QUICKTIME

One of the most enduring benefits of QuickTime will be its cross-platform transparency at the code level. The QuickTime Movie Exchange Toolkit has utilities and sample code that will allow developers to incorporate the Movie format into non-Macintosh applications such as MS-DOS, Cray, Silicon Graphics, Sun, DEC, and IBM.

Apple has announced that it is working with Corel Systems Corp. They are the manufacturers of CorelDRAW, one of the most widely used graphics programs in the MS-DOS sphere. Corel is developing file format translators to be shipped as part of a Macintosh utility in the QuickTime Starter Kit, a product for those who want to explore the capabilities of QuickTime. This Starter Kit will include the QuickTime extension, a CD-ROM sampler of Movies and demos, and QuickTime utilities. The Corel translators will allow for the conversion of many MS-DOS and Windows files to be played as QuickTime Movies. ■

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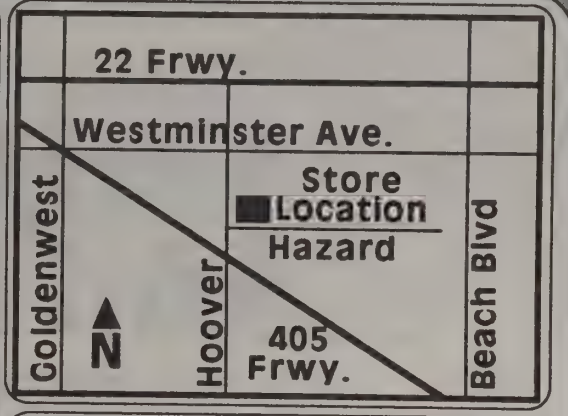

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Amiga Art And Multimedia

Exploratorium Exhibit Driven By A500; New Tools From ASDG

BY MATTHEW LEEDS

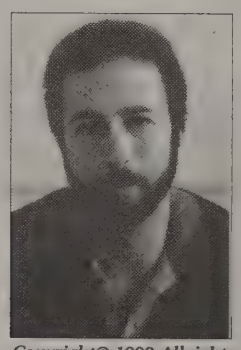
AMIGA

The Amiga community continues to amaze me. I'm sure model airplane builders and car racing buffs can tell stories about people in their circles, but I've never met a more creative and inventive group than those proud hackers who use the Amiga.

I recently spent a day at the Exploratorium, the Bay Area's science/art museum. This is a marvelous place to wander and explore, and explore I did. I found a new exhibit/artwork by artist-in-residence Toshio Iwai called "Well of Lights."

Well of Lights is a three-dimensional image sculpture in which you can view layers of moving imagery from many angles. While a description of its physical design does little to present its effect on a viewer, you'll appreciate the creative vision that it took to conceive and build this wonderful work.

The Well is a roughly circular object about 4' across. Its top is transparent; within it you see objects and images moving in a three-dimensional space. These objects change location, color, shape, and depth. They appear to be projected into space, floating unattached. The Well hums and vibrates. Overhead is what looks like the guts of a video projection system and a front surface mirror.



Copyright© 1992. All rights reserved. *Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.*

A closer inspection reveals what look like portholes in the sides of the Well. Looking through these reveals the first clue to the Well's construction. There appear to be several disks, each the same size as the interior diameter of the Well, inside. A close examination also shows that these disks are rotating at high speed.

I spoke with Toshio Iwai to better understand how the Well worked. He explained that its heart was an Amiga 500, driving an RGB video projector. The Well itself contained three polycarbonate plastic disks rotating at 80 RPM. Each disk had tiny intricate paper designs glued in precise patterns to its surface. By driving the video projector as a strobe light, and carefully controlling the precise direction and location of light into the Well, an effect similar to that used in a zoetrope creates the illusion of motion other than that caused by the rotation. Combining red, green, and blue light from the projector controls the color effects, the strobe rate controls the illusion of motion, and the location of light controls which paper patterns are illuminated.

You can think of the "Well of Lights" as a giant kaleidoscope that can be seen by many viewers simultaneously.

ASDG'S NEW ADPRO

ADPro v2.1.0, originally slated as a maintenance release, is now out. It adds many enhancements, including FRED, a frame editor providing easy batch processing and powerful animation tools. FRED helps users organize their pictures into lists called sequences. Individual frames in a sequence are represented on-screen with accurately rendered icons.

ADPro can be told to process each frame in a sequence, providing an easy method of batch processing. FRED also provides an extensible ability to call special purpose drivers which can cause ADPro to generate animation effects automatically. You can even preview animations within FRED, before committing them to a single frame recorder. FRED requires Kickstart 2.04 or later.

Also new in v2.1.0 are the roll and broadcast limit operators. The roll operator makes creating video transitions such as pushes, slides, and reveals much faster. The broadcast limit operator identifies and corrects colors which can cause playback artifacts based upon specific NTSC, PAL, or user definable standards. Both operators enhance ADPro's usefulness in the video studio.

ADPro's PREFPRINTER saver, which prints pictures with 24 bit-plane color or 8 bit-plane grayscale resolution on any printer supported by Preferences, has been augmented with eight new dithering methods. These new methods greatly enhance the quality of prints made on low-resolution black-and-white devices, such as common laser and dot matrix printers.

FILE TRANSFER WITH SPLT

ASDG has created a new IFF form to facilitate the transfer of large data files (such as images) between computers. The new form, called SPLT, has been registered with Commodore Business Machines and is available for use by other developers.

ASDG now provides programs to perform split and join operations under AmigaDOS, MS/DOS, and Microsoft Windows. These programs, distributed with ADPro 2.1.0, make it easier for ADPro owners to move large images between the Amiga and the PC. Additional split and join programs for other computers will be forthcoming, and are easily written given the SPLT specifications.

Exchanging pictures with other computers

Prior to ASDG's development of the SPLT form, images exchanged via floppy disk were limited to the capacity of a single floppy. This was because there were no split/join tools common both to the Amiga and other computers.

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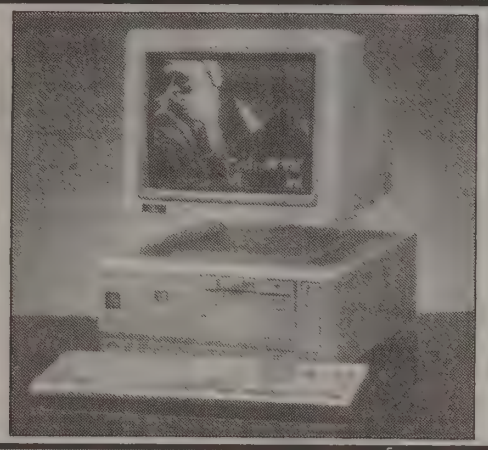

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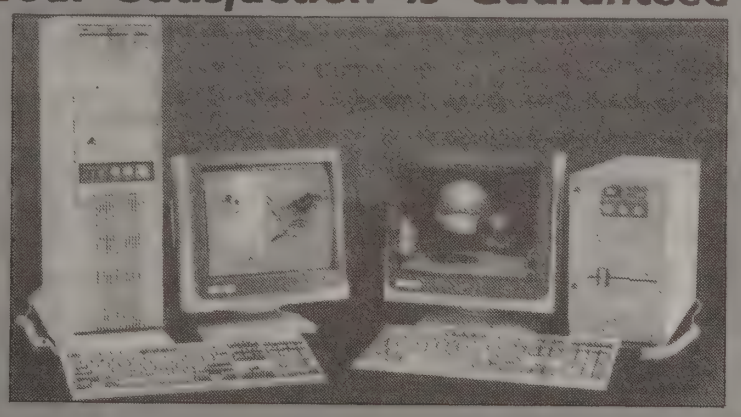

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requires the solution of two problems. First, you must get the picture physically from one computer to another; second, you must be able to understand the picture's format once it's on your computer. ASDG's Art Department Professional (ADPro) provides the solution to the second problem by being able to process a wide array of non-Amiga picture formats. However, Amiga users have so far been frustrated by the lack of an effective solution to the problem of physical data transfer between Amiga and non-Amiga computers.

Existing methods of physical transfer include using serial port communication (the slow speed of which makes it unreasonable for transferring large images) and the interchange of removable media such as floppy disks. This second method is especially attractive, since the Amiga can read and write diskettes from other computers, most notably the IBM PC, using programs such as CROSS-DOS from Consultron.

Prior to ASDG's development of the SPLT form, images exchanged via floppy disk were limited to the capacity of a single floppy. This was because there were no split/join tools common both to the Amiga and other computers. The SPLT form is a method for splitting large files into manageable chunks, keeping track of the chunks, and putting them back together in their proper order.

It should be noted that the SPLT form and tools are general-purpose in that they will process any type of data, not just images. ■

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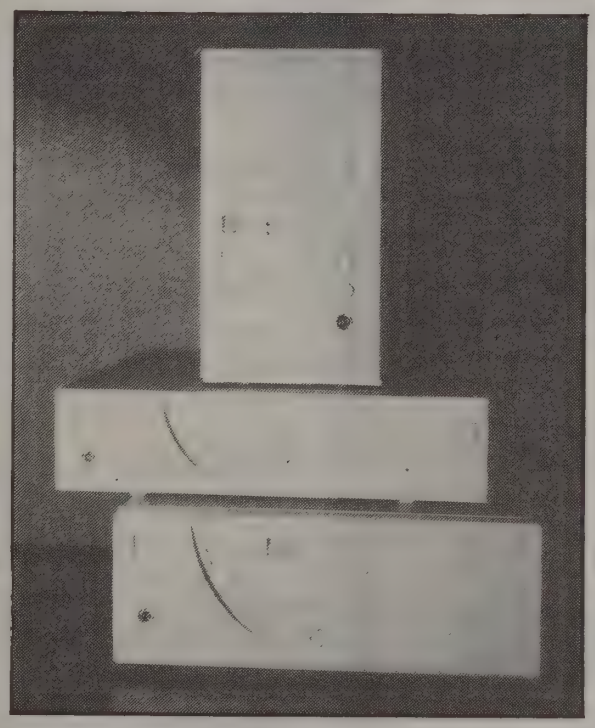

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April 1 OS/2 V2 Live Demo & Seminar By Luis Espinosa, Technical Specialist, IBM Corp. Burbank. Valley Computer Club. Call: (818)942-3707 or (213)221-4433.

April 1–3 Methods In Advanced User Interface Design Course. Los Angeles. UCLA Extension. Call: (310)825-1407.

April 4 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

April 5 Computer Show. Sequoia Conference Center, Buena Park. Computer Marketplace. Call: 1-800-800-5600.

April 5 Computer Show & Sale. Oxnard Civic Auditorium. MarketPro Shows. Call: (415)388-8893.

April 5 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

April 6–7 LAN Manager Basics Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 6–9 SunWorld Expo. Santa Clara. World Expo Corp. Call: (508)879-6700.

April 6–10 Building Multi-Level Secure Systems Using Trusted DBMS, OS, And Networks Course. Los Angeles. UCLA Extension. Call: (310)825-1407.

April 7 Novell 2.15 Update Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 11 Computer Show & Sale. Anaheim Stadium. Richard James Corp. Call: 1-800-433-7469.

April 12 Computer Show & Sale. Burbank Hilton Convention Center. Richard James Corp. Call: 1-800-433-7469.

April 12–15 Second International Languages Developers Conference. Monterey. Borland International. Call: CT Meeting Planners 1-800-942-8872 or (203)261-6227.

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April 14 Intro To LANs Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 18 Computer Show & Sale. CSU Northridge. Richard James Corp. Call: 1-800-433-7469.

April 21–23 The BusinessPerson's Computer Show. Anaheim. International Spectrum. Call: (617)578-3152.

April 22–23 NetCom WEST '92—Network Computing Solutions Conference And Expo. Anaheim. Information Development Corp. Call: (301)565-4233.

April 27–28 Pen Centric '92: International Symposium On Global Cooperation In Facing The Future Of Pen Computing. Tokyo. BigBang Technology, Inc. Call: (408)739-5708 or Japan at 81-3-5689-5611.

April 27–29 Novell 2.2 System Manager Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 27–May 1 Downsizing/Rightsizing Corporate Computing Conference And Exposition. Los Angeles. Boston University Corporate Education Center. Call: 1-800-733-3593.

April 28–May 1 Hands-on UNIX In C Course. San Diego. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

April 30 MS-DOS For NetWare Users Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

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May 2 Computer Show & Sale. Anaheim Stadium. Richard James Corp. Call: 1-800-433-7469.

May 3 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

May 4–5 Application Development Technologies Seminar. Los Angeles. DCI. Call: (508)470-3880.

May 5–6 Sixth Annual Facsimile And Image Communications Conference. New York. BIS Strategic Decisions. Call: (617)878-6650

Continued

APRIL 4

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June 6, 1992 SATURDAY
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June 7, 1992 SUNDAY
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June 27, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

June 28, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

July 18, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

July 19, 1992 SUNDAY
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August 8, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

August 9, 1992 SUNDAY
Sherman Square Entertainment Center, Reseda

August 29, 1992 SATURDAY
L.A. Fairgrounds (Fairplex), Pomona

SAN DIEGO SHOWS HAVE BEEN CANCELLED

Calendar Of Events continued

or (617)982-9500.

May 5–8 Hands-on Novell Networking Course. San Diego. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

May 5–8 OS/2: Comprehensive Hands-on Intro Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

May 12–15 Intro To Datacomm And Networks Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

May 16–17 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

May 19–20 Ed Yourdon On Object-Oriented Analysis And Design Seminar. Los Angeles. SCI. Call: (508)470-3880.

May 30 Computer Show. SDSU Aztec Center, San Diego. Computer Marketplace. Call: 1-800-800-5600.

May 31–June 6 Borland's Database Conference. Palm Desert. Borland. Call: 1-800-942-8872.

JUNE

June 1–3 Collaboration 92: Conference Exploring The Intersection Of Corporate Culture And Information Technology. San Francisco. Graphics Communications Assoc. Call: (703)519-8160. Email: mern@well.sf.ca.us.

June 6 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

June 8–10 Securing Your Networks Conference. San Antonio, TX. CSI. Call: (415)905-2626.

June 8–12 USENIX Summer 1992 Technical Conference. San Antonio. USENIX Assoc. Call: (714)588-8649.

June 9–12 Hands-on PC Configuration & Troubleshooting Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

June 16–19 Hands-on Novell Networking Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

June 16–19 Network Planning, Support & Management Course. San Diego. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

June 18–20 Science, Mathematics, And Macintosh Conference. Santa Barbara. UCSB Extension. Call: (805)893-4143. Email: XU02JFE@ucsbuxa.ucsb.udu.

June 23–25 Tenth Annual PC Expo. New York. Bruno Blenheim, Inc. Call: 1-800-829-3976. ■

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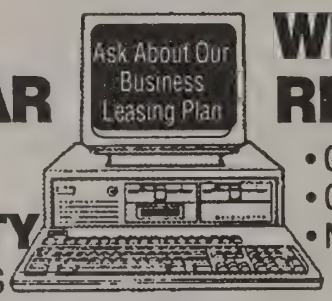

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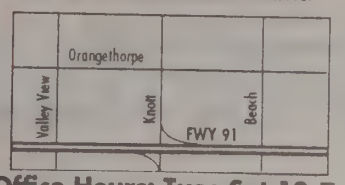

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- Mini tower or mini desktop with LED display
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Infinite Diversity Infinite Combination: The BBS. (213)296-6755. 10:00 pm–6:00 am, 300/1200/2400. This board is for writers, artists, and Star Trek clubs. Sponsored by Infinite Savant Publishing and Sundance Writers' Guild. [Exp. #96.]

INFOmania BBS. (213)850-1627. 8-N-1, 24 hrs., 300–14,400. Compucom modem, running RBBS, Fidonet, NANET, Racenet, and RIME conferences. .QUK door for offline mail readers. Sysop: Frank Keeney. [Exp. #95.]

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LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Amiga. Sysop: Thom Irwin. [Exp. #96.]

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Lynzie's Motherboard. (213)848-2700. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, email, public forums, local social events, over 800MB online. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #95.]

Megabytes BBS. (213)221-6379. 8-N-1, 24 hrs., 300/1200/2400. IBM software, Windows, and utilities. Free. Sysop: William Rivas. [Exp. #95.]

Original Apple Corps BBS. (213)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #96.]

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Royal Rook BBS. (213)934-2812. 8-N-1, Mon.–Fri., 6 pm–11 am. Telegard. Musicians and IBM Tech Support. Free, reg required. Sysop: Watcher. [Exp. #95.]

Twelve Steps BBS. (213)654-9160. 8-N-1, 24 hrs., 300/1200/2400/9600. For members of twelve step programs such as AA, SAA, OA, ACA/ALANON, etc. Free. Sysop: Peter Rath. [Exp. #94.]

310

Amiga Artists Club & BBS. (310)590-9949. 8-N-1, 24 hrs., 300/1200/2400. UL/DL, 170MB, Art SIGs, Amiga bases, and online games. [Exp. #96.]

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The Tower BBS. (310)404-9116. 24 hrs., 1200–14,400. Wildnet, Intelec, After Dark echo mail, Arkansas Bytes online magazine, and Flight Simulator. Sysop: Larry Williams and Gary Anderson. [Exp. #96.]

619

Satang BBS. (619)364-0033. 8-N-1, 24 hrs., 300/1200/2400. 170MB online, Wildcat! IBM files & programs, religion and metaphysics. Sysop: Ed Shimko. [Exp. #94.]

714

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805

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818

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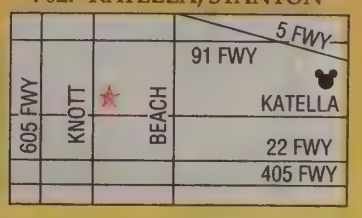

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ASSOCIATIONS

Black Data Processing Assoc., LA Chapter. Meetings: 4th Tues., 6:30 pm, ULTC, 7226 S. Figueroa St., Los Angeles. Call: (310)673-6522 or 1-800-727-BDPA. [Exp. #97.]

CALPA—California American Legion Press Association. 4774 College View Ave., Los Angeles, 90041. Call: (213)257-7179. Group of Editors of American Legion publications. [Exp. #94.]

Data Processing Management Association. Meetings: 2nd Thurs., 7:00 pm. An organization composed of all levels of management personnel who have an interest in the field of information processing. Call: (310)549-9680 or (213)225-9210. [Exp. #99.]

FASCAL—Filipino American Society For Computer Activities And Literacy. Meetings: 2nd Sat. of alt. months, 1–4 pm, LA Midtown Hilton. Annual dues $20. Write: PO Box 3913, Chatsworth, CA 91313. [Exp. #94.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6:00 pm, Proud Bird Restaurant, 11022 Aviation Blvd., Los Angeles. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #96.]

Independent Computer Consultants Association. Meetings: 1st Thurs., 6:00 pm, McGuire's Restaurant, 8232 DeSoto Ave., Canoga Park. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #98.]

Orange County Association Of PICK Professionals. Meetings: 3rd Wed. Dinner: Members, $20; Non-members, $25. Without reservations add $5. Call: Paul Rogers, (714)641-6347 or 1-800-487-7877 ext. 6347. [Exp. #99.]

The Software Council Of Southern California (SCSC). Meetings: Last Wed., 6:00 pm, Long Beach Airport Marriott, 4700 Airport Plaza Dr., Long Beach. SCSC was founded to further the interests of software development organizations, as well as companies that provide support and services to the local software industry. Call: (310)328-0043. [Exp. #98.]

IS YOUR LISTING MISSING?

Free user group and association listings are limited to the group's name and a ten-word description, including the mailing address and contact phone number. They will be **deleted at six-month intervals** to ensure timeliness and accuracy of information. **Free BBS listings** are also limited to the board's name, sysop's name, and a ten-word description including parameters, baud rate, phone number, and registration fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.**

You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. Faxes are welcome at (510)934-2417 or (213)467-5486. **Email** can be sent to: microx@well.sf.ca.us. Or MCI:MICROTIMES.

Starting November 2, 1991, the 213 area code will be split again. If the number for your BBS, User Group, Association, or Calendar listing will change to 310, please notify us—by letter, fax, or email—so our listings will include this information.

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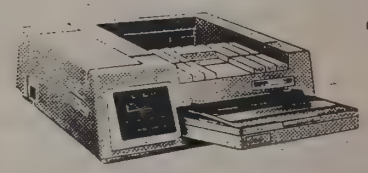

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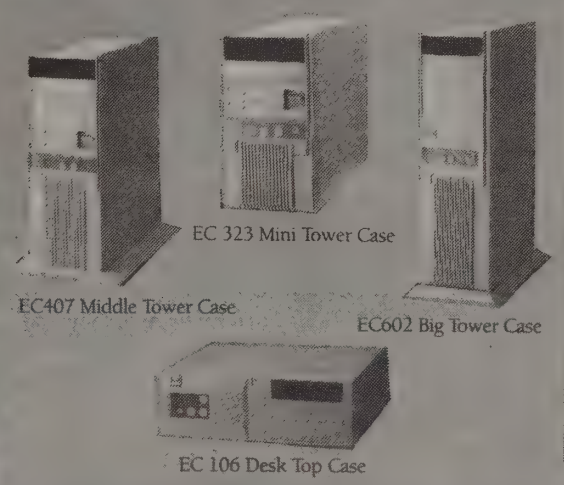

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LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7:30 pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, rookies, monthly PD disks. Call: Kip Hammond, (310)390-3010. [Exp. #99.]

APPLE

Orange Apple Computer Club. Meetings: 1st Sat., 9:00 am, Orange Coast College, Chemistry Lab. Apple II supported. Call: (714)731-9243. [Exp. #99.]

Original Apple Corps, Apple II User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #99.]

ATARI

ATESIG—Atari 8-bit SIG. Meetings: 145 Surf Pl., Seal Beach. Cooperative group for Model Railroad applications. Call: (310)430-5433. [Exp. #95.]

RAM Atari ST User Group Of Ventura County. Meetings: 3rd Wed., 7:30 pm, Call: Tim McCoy, (805)389-0059. [Exp. #97.]

South Bay Atari Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd. Active since 1985, novices & all skills welcome. Call: (310)375-4839. [Exp. #97.]

CAD/CAM

Los Angeles Area AutoCAD User Group. Meetings: 4th Wed., 6:30 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia Blvd., Burbank Meetings feature tutorials, Q&As, demos, hands-on, BBS, and newsletter. Call: M. Berman. (818)762-9966. [Exp. #96.]

COMMODORE

C128 West Commodore 128 User Group. Meetings: Covina & Santa Monica. Free membership. Large disk library. Call: John, (818)331-1589; Paul, (818)892-3859; BBS (714)598-1755 FidoNet. [Exp. #96.]

Commodore Helpers Of Long Beach. Meetings: 2nd Sat., 9:00 am. St. Timothy's Lutheran Church, Woodruff and Arbor in Lakewood. Supports 64/128 models. Call: Tom Hoy, (310)424-0508. [Exp. #99.]

Orange County Commodore Club. Meetings: 4th Sat., 11 am, Fidelity Federal Bank, 19900 Beach Blvd., (Newland Shpg Ctr) Huntington Beach. Call: Mike Moore, (714)668-9715. [Exp. #96.]

South Bay Commodore Users Group. Meetings: 3rd Thurs, 7:00 pm. SEC Redondo Generating Station, 1100 Harbor Dr. (across from King Yacht Harbor). Free and open to all who use or own Commodore computers and to those who would like to receive or exchange information on programs, applications, or hardware. Call: (310)324-8357. [Exp. #97.]

DESKTOP PUBLISHING

Southern California Ventura Publisher User Group (SC–VPUG). Meetings: Last Tues., 7:00 pm, 401 N. Brand, Glendale, Glendale Federal Bank Building. Product demos, Q&As, library resources. Call: (818)955-5830. [Exp. #97.]

VICUG—DTP (Valley IBM/ Compatibles User Group—Desktop Publishing). Meetings: 1st Fri., 7:00 pm, Union Federal Savings Bank, 13330 Ventura Blvd., Sherman Oaks. Membership fee $25/yr or $3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #99.]

EPSON

SFV & LA Epson QX User Group. Meetings: 3rd Mon., 7:30 pm, The Meeting Place, Fallbrook Mall, Canoga Park. Call: Bill Winter, (818)347-7417. [Exp. #95.]

IBM & COMPATIBLES

Computer-RAP Club User Group. Meetings: 3rd Tues., 7:00 pm, 730 Pine Ave., #411, Downtown Long Beach. Call: (310)436-8944, between 6:30 pm–9:30 pm. [Exp. #95.]

Greater South Bay PC User Group. Meetings: 2nd Thurs., 7:30 pm, Christ King Lutheran, 2706 W. 182nd St., Torrance. Visitors welcome. Call: (310)542-4996. [Exp. #96.]

Long Beach IBM PC And Compatibles User Group. Meetings: 3rd Wed., 7:00 pm, Los Altos Methodist Church, 5950 E. Willow St., at Woodruff. Novices and experienced welcome. BBS, PD library, newsletter, and SIGs. Call: Jim Wells, (310)439-7114. [Exp. #97.]

Los Angeles Computer Society. Meetings: 2nd Tues., 7:00 pm, Culver City High School Cafeteria. Meetings are free and there are always live presentations and giveaways. Call: (310)473-6668. [Exp. #97.]

NOCCC. Meetings: 1st Sun., Chapman College. Call: (714)998-8080. [Exp. #94.]

Orange Coast IBM PC User Group. Meetings: Last Sat., 9:00 am. Orange Coast College. Speakers, BBS, software library, newsletter, and SIGs. Everyone welcome. Call: (714)843-2048. [Exp. #99.]

Pasadena IBM User Group. Meetings: 3rd Wed., 6:30 pm, Huntington School, 1700 Huntington Dr. Speakers on hardware/software, SIGs, BBS, library, and newsletter. Call: Steve Bass, (818)795-2300. [Exp. #96.]

South Orange County Computer Club (SOCCC). Meetings: 3rd Thur., Westminister Community Center. IBM, Apple, CP/M. Vendor presentations, newsletter, etc. Membership: $12 single; $14 family. Call: (714)531-0376. [Exp. #94.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 4th Thurs., 6:30 pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)496-9699. [Exp. #99.]

Valley Computer Club. Meetings: 1st Wed., 7:00 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Call: (818)842-3707 or (213)227-9684. [Exp. #96.]

Ventura PC User Group. Meetings: 3rd Sat., 9:00 am, Poinsettia Pavilion, Canada Larga Rm., 3451 Foothill Rd., Ventura. Guests welcome, no charge for attendance. Call: Kenn Ritza, (805)644-6955. [Exp. #99.]

VICUG (Valley IBM/ Compatibles User Group). Meetings: 4th Fri., 7:00 pm, Security Pacific Bank, 14801 Ventura Blvd., Sherman Oaks. Membership fee $25/yr or $3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #99.]

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West Los Angeles Kaypro User Group/KAYOS Kaypro User Group. Meetings: 4th Mon. of even months, 6:30 pm, El Segundo. Call: Margot, (310)379-8339. [Exp. #94.]

K-MAN

Southern California KnowledgeMan User Group. Meetings: 1st Wed., 7:00 pm, Honda North America, Bldg.

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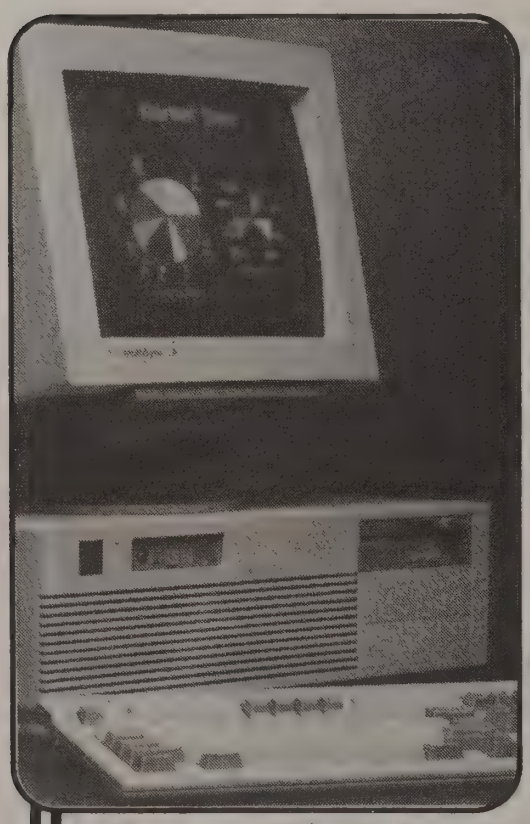

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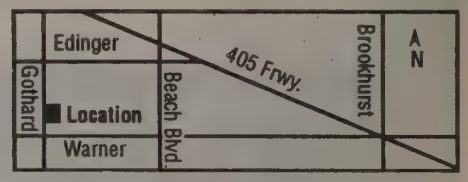

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MacValley User Group. Meetings: 1st Wed., 7:30 pm, Wilkinson Senior Center, 8956 Vanalden, Northridge. Meetings, new product demos, newsletter, PD and shareware software, and more. Membership dues, $30/yr. Visitors welcome. Call: Bob Campbell, (818)784-8666. [Exp. #96.]

Orange Apple Computer Club. Meetings: 1st Sat., 9:00 am, Orange Coast College, Chemistry Lab. Macintosh supported. Call: (714)731-9243. [Exp. #99.]

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San Gabriel Valley Mac Users Group. Meetings: 1st Thurs., 7:30 pm, Pasadena Central Library Auditorium. Call: (213)684-ICON. [Exp. #97.]

Whittier Area Mac User Group. Meetings: 2nd Sat., 10:00 am, Granada Heights Friends Church, La Mirada. Call: (310)947-2447. [Exp. #97.]

NeXT

Southern California NeXT User Group. Meetings: throughout LA County. Call: Mike Mahoney, (213)985-1550 or Bob Desharnais, (213)343-2056. [Exp. #96.]

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THEOS User Group. Call: Fred Bellemy, (805)965-0265. [Exp. #97.]

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UNIX User Association Of Southern California. Meetings: 2nd Mon., 7:00 pm, New Horizons Learnings Center, 1231 E. Dyer Rd., Santa Ana. Call: Vince, (714)556-1220, ext. 126. [Exp. #94.]

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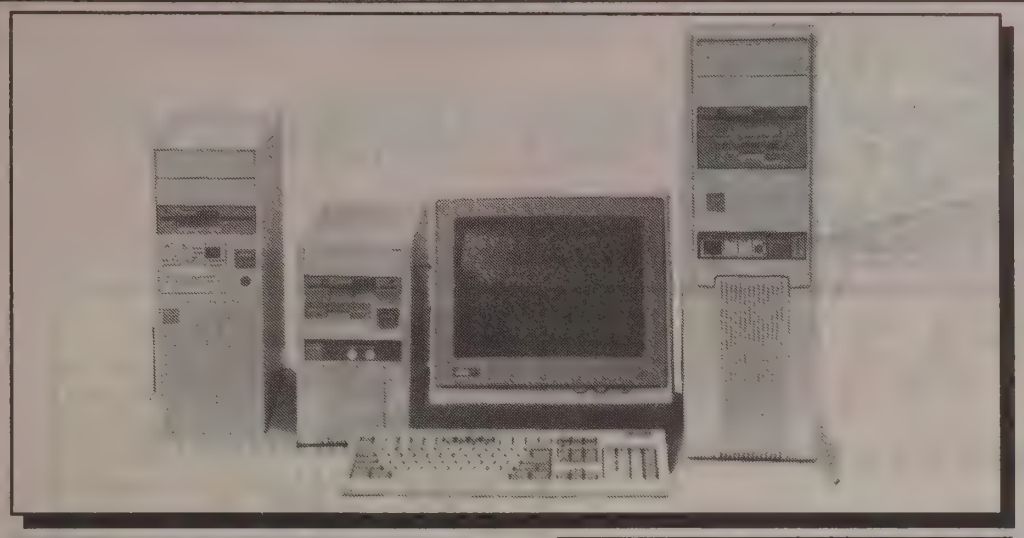

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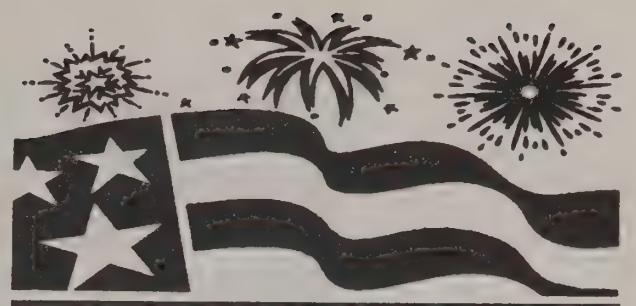

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Continued from page 84

erboard, a CPU might look like it's running at 33MHz; inside the CPU, however, it's running at 66MHz. All instructions that can be run in the chip without having to go out to the motherboard for more data can run at twice the normal speed. Thus, some parts of some programs will run twice as fast as they did before. However, most programs will not necessarily speed up that much, although they will all run faster.

The 586 will be Intel's high-end CPU for at least two years. Of course, it will run faster than the 486. It will be able to execute two or more instructions per clock cycle, even on pairs of instructions that would normally have to run in sequence. It will have larger internal caches, and will have separate data and instruction caches. The separate caches will make it run faster when you have a small set of instructions that operate on constantly changing data, such as in spreadsheets and network managers. It will include other more esoteric advances as well.

DECISIONS FOR PC BUYERS

First and foremost, you must decide whether you insist on using an Intel CPU. Choosing a competing CPU probably gives you more speed or lower cost, although the market changes so rapidly that neither is assured. Because Intel still owns the vast majority of the market, insisting on Intel will probably not restrict you significantly.

A more serious concern is deciding when to buy. AMD just released its 33MHz 386SX, meaning that computers using that chip won't appear for a few months. In the computer industry, waiting a few months always means paying less money, but also means never knowing when to buy. Since none of the other 386 CPU clone makers have announced when or what they will deliver, you are probably safe in assuming that the market will be stable until this summer when AMD ships its 486s and Intel probably ships its "clock doubling" 486s.

The hardest decision faced by most PC buyers on the low end is whether to buy a 386SX or a 386. As you can see from the ads in *MicroTimes*, 386SX computers are much less expensive. However, many users of Windows and early versions of OS/2 say that although it's physically possible to run them on a 386SX, it's so unproductive that it's not worth doing. If you are sure you won't be using one of the new operating systems on the PC you buy (e.g., if you're sure you'll only be using WordPerfect and 1-2-3), a 386SX is probably a safe buy. If you're not sure, you should buy a 386 if you can afford it. If speed doesn't mean anything to you and price is everything, you may even find yourself buying a 286-based system. ■

When Intel first released the 80386, it proclaimed that this was the end of the 8086/8088. That turned out to be dead wrong. The price of the 80286 had not fallen enough for PC manufacturers to forsake the 8086/8088, so they kept buying the chips and selling the systems.

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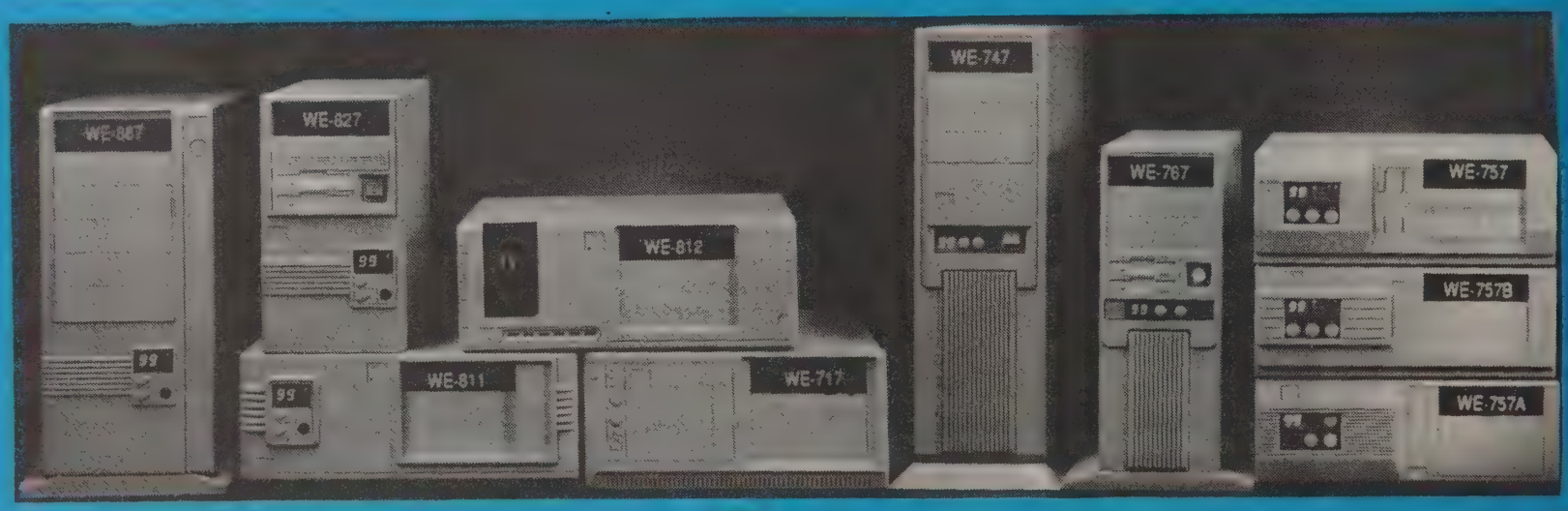

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Continued from page 91

casts that covered Michelangelo were often full of incorrect or misleading information. If you went by their reports alone, it would have been easy for you to assume that you weren't infected when you were, or that you might have been infected when you couldn't be (at least one TV station showed a picture of a Macintosh throughout a news story about the Michelangelo virus).

Because there are dozens of ways for different viruses to get to your system, you should only assume you are virus-free immediately after running a virus-checking program.

The computer press did a much better job of covering the virus than the mainstream press did, of course. Many of the errors reported in the mainstream press were due to misunderstanding basic computer concepts, but some were due to trusting "experts" who, in fact, knew very little about the virus. However, some of the computer press made the situation worse by giving inaccurate methods for detecting the virus and preventing damage.

Many news sources said a reliable way to detect the virus was to look at the amount of memory reported by the MS-DOS CHKDSK command; if it was 2000 bytes less that it "should have" been, you were infected. However, some infected computers reported the full amount available. The only sure way to detect the virus was to run a scanning program (there were no reports of errors in any of the scanning programs that knew about the Michelangelo virus).

Even worse, many newspapers and television reports said that you could safely avoid the virus by setting the clock on your computer ahead to the date after the virus was to strike. This advice turned out to be true most, but not all, of the time, due to the way that some computers use the MS-DOS DATE command. On some systems, advancing the date with the DATE command did not keep the date advanced after the computer was turned off, thereby giving the user a false sense of confidence and causing some people to lose their data. It would have been much more responsible to tell people to use virus removal software instead.

Because the popular press has by and large ignored the personal computer, it wasn't prepared to deal with the issues that arose with the Michelangelo virus. From the reports, it was clear that many didn't understand how it was spread, what the damage meant, or, most importantly, how easy it was to detect and remove. Most newspapers emphasized the free Michelangelo-specific cures without any regard for the hundreds of other viruses, as if they weren't important because they weren't an immediate threat. Rarely did the issue of preventative maintenance or backup appear. Even in the computer press, the strong message of "check for Michelangelo" completely overshadowed the discussion of better computing practices. ■

CREATIVE TOOLS

Continued from page 114

your account will go looking for easier targets if it's taking too long to get your door open.

• Your passwords should be easy to remember. It's no good having a long complicated password if you can't remember it. Things that are personal to you are good—nicknames, pets, or hobbies. Don't use your name, birthday, or phone number.

• Don't write the numbers down in your telecommunications program manual, on a Post-It next to your modem, or in your NotePad under "Passwords." They're a temptation to the weak. There's an old Jewish saying: If eyes did not see, hands would not take.

If you use the same password everywhere, the crackers can log on as you, and cause a lot of mischief. This has happened on a number of Bay Area bulletin boards recently, so it's no joke!

• Try to include a number or two among the letters. This makes it impossible for a dictionary to be used to break the password. I use variations of bilingual puns for my passwords. A password can even be a phrase by using number/word homonyms, such as, too far to go = 2four2go.

• Rotate the passwords every couple of months. This is a big pain in the neck, but it will really help add to your security. Corporate computer programs typically have many layers of security to pass through, and often require a password change every month or six weeks.

BITS AND BYTES

• Here's something to try if your Macintosh hangs up while running System 7. This is if things just freeze up, but there's no bomb dialog showing. Try pressing Command+Option+Escape simultaneously, and see if that gets you back into your program. Then you can Save, Quit, and Restart. This action stops the last process that the program was trying to run. Sometimes it will give you a chance to do that Save you forgot to do.

• There's a recall program on Apple Color Hi-Res Monitors with serial numbers: 7000001–7101012, 5378111–5624450, and 9000001–9029500. The problem is a defective high-voltage capacitor that can cause intermittent shutdowns of both monitor and Mac. The program runs until March, 1993. If you paid for out-of-warranty service, Apple will reimburse you if paperwork is processed by August 15, 1993. For more information, call: (303)297-2321..

• If you're feeling blue because you don't have a Macworld Expo to go to on a Saturday night, then you should order the latest BMUG Expo video. The Macworld Tour: San Francisco '92 tape follows me, your tour guide, around the Expo. I meet BMUGers and other celebrities—even the chicken from Software Ventures. There's a good demonstration of Userland Frontier by one of its programmers. It's only $15 + $4 postage and handling. ■

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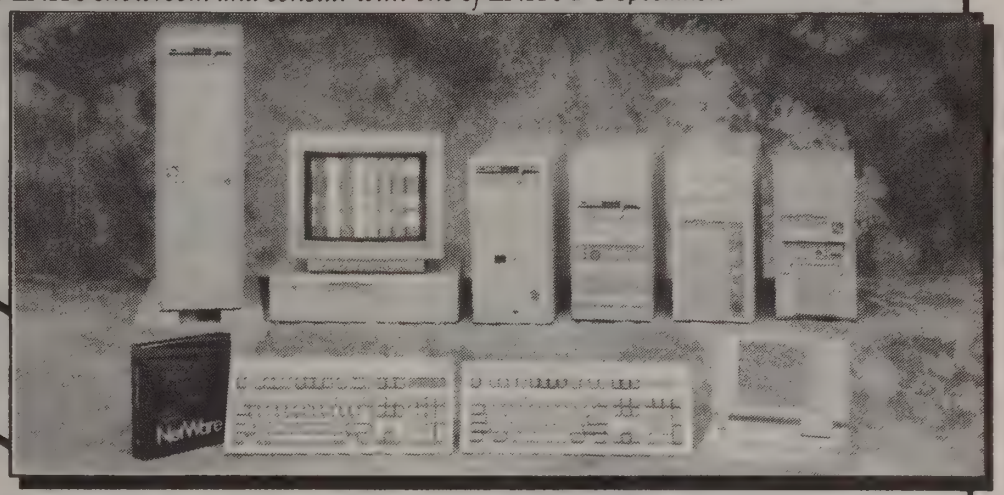

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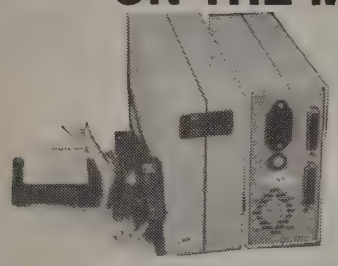

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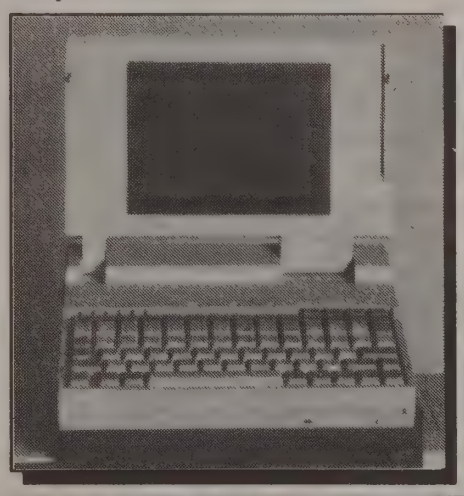

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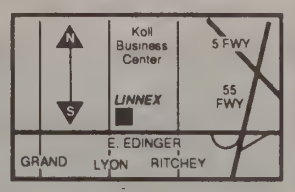

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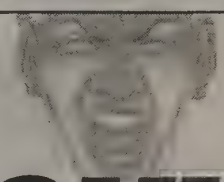

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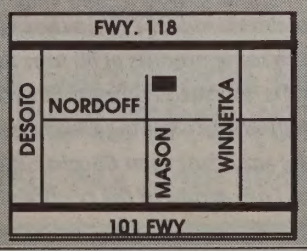

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It's Odds And Ends Time

Or Dvorak's Pile O' Weird And Interesting Items Is Overflowing

BY JOHN C. DVORAK

I have to unload the in-basket, which is full of some funny items.

The first is the press announcement from Slate Corporation, a provider of software for pen-based computers. I like to kid these pen-oriented companies because I know a lot of people who work there and I think it's kind of interesting to see what they come up with. I'm particularly amused since I think the whole pen-based scene is a bit of a crock.

So Slate Corp. finally brings out its first two products for the GO Computer. The first is a spreadsheet program where you use the pen to write in the numbers. Sounds arduous, if you ask me, but I'm sure someone will buy a copy. The next product is more interesting. Here's the press announcement taken from a news service and condensed a bit.

SLATE PUTS DAY-TIMER ON PEN MACHINES

Software maker Slate Corp. announced that it has developed a version of the popular Day-Timer appointment keeper for the new pen-based portable computers. Slate said it developed the software in conjunction with Day-Timers Inc., the maker of the notebook-like organizers popular with business people. The software contains a multiple-view calendar, a to-do list, an address book, and a note pad.

With the new Slate software, a user can write in an appointment and then call it up on the screen at a later date. A copy of a note the user scribbles to himself can be copied into another part of the organizer. Addresses stored in a desktop computer can be loaded into the portable computer. Slate Chairman Vern Raburn said there are other personal-scheduling programs on the market for pen-based computers, but none provides the same features as the Day-Timer. The software will be available in the second quarter of the year at a list price of $195.

Hmmmm, now let me get this straight. The little vest pocket Day-Timer which costs about $20 and weighs less than a pound has been turned into software selling for $195 and running on a 6 1/2 lb. pen-based machine that must be carried around in a briefcase.

Gosh, sounds like a good idea to me! *Not!*

DVORAK'S LAST COLUMN

© 1992 by John C. Dvorak. All rights reserved. *John C. Dvorak graduated from the University of California. He is a contributing editor of* PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

Paul Hoffman writes: "I passed a copy of your PC Mag *article on PCMCIA cards on to a Japanese friend of mine. He's an engineer supporting DRAM salespeople for a very large Japanese company. Here's his reply:*

"'I read the article about the IC DRAM card. It helps me understand what Americans think about this new technology. After coming back to Japan, I learned that PCMCIA standard memory cards do not necessarily have compatibility. XXX's engineer told me that the DRAM card which is used in the XXX notebook, model YYY, in the USA has the same physical dimensions and the same pinouts of 88 pins that is standard by JEIDA and PCMCIA but it is not really compatible because of the difference in DRAM refresh method and banking which the ASIC in the PC determines the way. And he said that even 68-pin SRAM cards don't have compatibility. So now I am afraid of the confusion PC users will have in the near future.'"

Well, hopefully the PCMCIA cards will be clearly marked as such and Americans won't buy something that merely looks like the PCMCIA card. If you haven't heard, the little PCMCIA card is a credit card-sized dynamo of a card that can act as memory, mass storage, modem, ROM, whatever. It will be the rage on the lightweight laptop of the future.

Here's something I read on a CompuServe forum and I don't believe a word of it. Apparently ALR Computers was seriously thinking of having Pee-Wee Herman appear in an ad for its laptops. The scene was a porno movie theater. The camera would zoom in slowly and you could see a guy in his seat—his hands clearly moving. What was he doing?!?! The camera moved in closer to reveal he was typing on an ALR notebook. Eeeek.

Sometimes the PR guys have something interesting to say. From Mike Sweeny I get this memo.

"The following is an industry issue/debate I'd like you to consider:

"A) Cache is a waste of money in the 80486 environment now and in the future.

"B) The PC world first grasped the idea that cache provides performance improvement when processor speeds exceed DRAM speeds. This was shown conclusively by high-speed 80386DX processors in particular.

"C) People are ignoring that any system with the 80486 *has* a cache already.

"D) The internal 80486 cache is more effective for its size than almost any external cache due to four-way interleaving versus direct mapping. The amazingly high hit rate on the 80486 is evidenced by benchmark data. Examine any benchmark comparison between competing 80486 systems. There's little difference between all systems, regardless of whether they have cache or not.

"Conclusion: Users are wasting their money on cache for the 80486 and should be aware of it. Time for someone to blow the whistle upon such a waste of money."

I checked with Intel. A lot of vendors regard this claim favorably, and nobody really refutes it. Intel likes to sell its external cache, so it downplayed the situation, finding some rationale for the external cache. So, Mike, consider the whistle blown.

My researcher David Powis-Dow hates George Bush and sent me a copy of the *Wall Street Journal* article on "Buy American." An excerpt:

Delivery people yesterday were busily unloading fax machines in boxes emblazoned "Made in Japan." And freshly unpacked personal computers bore name plates declaring they were "Made in Suwong, Korea." [At first the campaign officials said they were American made.] After checking further and finding that the Samsung computers were in fact imported, [campaign spokesperson] Ms. Clarke said, "We did try very hard to get American-made PCs, but the ones available were way out of our price range."

Since when is Samsung the cheapest? What a crock. This kind of bumbling at the Presidential level is perturbing. Maybe they should at least get a subscription to *MicroTimes*. ■

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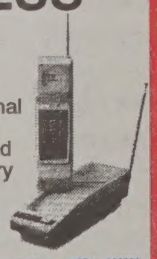

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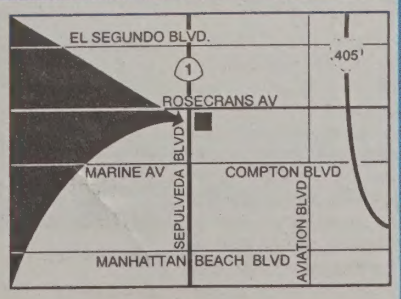

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> —*Steve Gibson InfoWorld 8/26/91*

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PC Week Ratings	All Charge 386 3.2	Netroom 2.10	QMAPS 2.0	386Max/ BlueMax 6.00	QEMM 6.01 Analyst's Choice	Memory Commander 2.1
Software Compatibility	◒	●	○	◒	●	◒
Hardware Compatibility	◒	●	◒	◒	●	◒
Reliability	○	◒	○	◒	●	○
Ease of Use	◒	●	◒	◒	●	◒
Memory Management Flexibility	◒	●	◒	●	●	◒
Quality of Documentation	◒	●	◒	●	◒	◒

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PC Week rated QEMM 6 the best memory manager.

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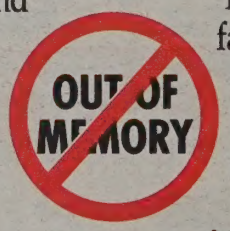

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Key to comparison table: Software compatibility is defined as the product's ability to run without problems with the operating systems PC Week Labs used in testing, MS-DOS 5.0, IBM PC DOS 5.0 and Microsoft Windows 3.0, and with a variety of application software, including Quarterdeck's DESQview 2.40, Xerox Ventura Publisher 3.0 for DOS, WordPerfect 5.1 and Artisoft's LANtastic 4.0. Hardware compatibility is defined as the programs's ability to run on PC Week Lab's test hardware platform, which included a 33MHz 486-based PC and a 25MHz 386-based IBM PS/2 Model 70. Reliability ratings are based on the successful and dependable performance of each operating system and application-software package under each memory manager. Ease of use is based on ease of installing and configuring each program, based on support for automatic loading features and the intuitive narure of the interface. Flexibility in managing memory is rated on the range and quality of the product's features in optimizing system performance and handling special-case installation. Quality of documentation is judged by the clarity, comprehensiveness and helpfulness of the documentation provided with the product, based on the organization of the manuals as well as the thoroughness of definitions, directions and explanations, and the inclusion of troubleshooting information.

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